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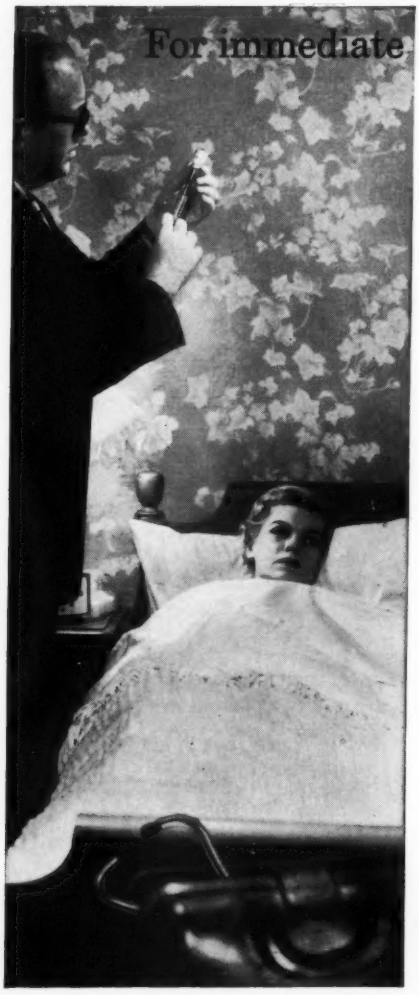

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The Manitoba Medical Review

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Symposium on Practical Aspects of Water and Electrolyte Therapy

Fluid, Electrolyte and Nutritional Alterations in Surgical Patients*

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Since the basic principles of fluid and electrolyte balance, the body fluid compartments and their electrolyte composition and acid-base balance have been extensively reviewed[1-10], this paper will be confined to a discussion of several metabolic alterations which are encountered in surgical patients. Specifically, we would like to review, (1) some of the important alterations that occur in patients who have pyloric obstruction due to peptic ulceration, (2) those situations in which internal shifts of fluid and electrolyte occur, (3) the nutritional alterations occurring following surgery; and the therapeutic measures applicable to these conditions.

Dehydration due to excessive sweating, or an inadequate intake, or external loss of fluid and electrolytes are conditions that are familiar to most physicians. The losses that result from vomiting, tube suction, biliary or intestinal fistulas and diarrhea are now well understood. Following the contributions of Darrow[4] and his associates, emphasizing the large renal potassium losses associated with diarrhea, the physician anticipates such a deficit, and therapy is directed towards correcting it. In patients with dehydration resulting from external losses, a decrease in the plasma and interstitial fluid volumes occurs with a resultant transfer of intracellular water, potassium, protein, phosphate, and sulphate from the cell into the extracellular fluid compartment. If adequate renal blood flow is maintained, the body attempts to rid itself of the end products of protein metabolism, and significant amounts of intracellular and extracellular anions or cations are excreted in an attempt to maintain acid-base balance. Thus, dehydration and electrolyte deficits develop in both the intracellular and extracellular fluid compartments. Such alterations are frequently encountered in patients with pyloric obstruction due to peptic ulceration. One to six liters of gastric fluid may be vomited, or removed from the stomach by tube suction in twenty-four hours. Such secretions often contain 120-155 mEq. of sodium and 5-15 mEq. of potassium[11]. The frequent recommendations that ammonium chloride solutions be used to correct the hypochloremia under such circumstances, attests to the fact that the renal losses of fixed base (sodium, potassium, and to a lesser extent calcium and magnesium ions) have not been considered.

Table 1 shows the metabolic balance data we obtained in a 28 year old woman who was admitted because of a perforated duodenal ulcer. If the respiratory and sweat water losses were estimated at approximately a liter per day and if one considers the water of oxidation as a gain, this would mean that the patient's true daily water balance would be approximately 600-700 ml. less than that shown in Table 1. By considering these factors it will be noted that a cumulative water deficit of about two or two and a half liters occurred during the first five days. During this period the gastric drainage varied between one-half to two and a half liters. It should be noted that the gastric fluid chloride losses were large and that after the second day the amount of chloride excreted in the urine was negligible. The five day cumulative sodium and chloride deficits amounted to 548 and 601 mEq. respectively, while over the same period a deficit of 130 mEq of potassium occurred, in spite of a modest intake of this ion. The deficits of potassium and to a lesser extent of sodium which developed in this patient were chiefly due to the renal excretion of these ions. The chloride deficit, on the other hand, was primarily the result of extrarenal losses. After the edema and inflammation associated with the perforated ulcer subsided, the partial pyloric obstruction in this patient was alleviated. It is quite apparent from this data and comparable observations[11-15] which have been made in the experimental laboratory and from the study of other patients with pyloric obstruction that the need for sodium and potassium should not be based on the concentration of these ions in the drainage fluid but on a summation of all losses (renal and extrarenal). To date, we have not found it necessary to give ammonium chloride to patients with pyloric obstruction. If sodium chloride, potassium chloride and occasionally small

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Table 1
Patient: M.K., 28 year old female. Operation: Plication of perforated ulcer.

WATER				
Postop. Day	Intake	Output		Balance
		Urine	Gastric	
OR*	2700	1110	650	+ 940
1	3000	1530	920	+ 550
2	3000	2147	2470	-1617
3	3000	1271	1320	+ 409
4	3000	1647	780	+ 573
5	3000	1204	545	+1251
6	3570	2215	0	+1355
7	870	671	0	+ 199
8	2095	1136	0	+ 959

SODIUM					
Postop. Day	Intake	Output+		Balance	Serum Sodium Conc.
		Urine	Gastric		
OR*	170.5	240.9	28.1	- 98.6	146
1	59.4	140.1	71.6	-152.4	
2	59.4	109.6	129.7	-180.0	130
3	59.4	61.9	91.5	- 94.1	
4	59.4	22.7	59.4	- 22.8	
5	59.4	9.3	41.0	+ 6.2	132
6	59.4	4.9	0	+ 51.5	
7	17.7	0.7	0	+ 16.4	
8	58.8	2.4	0	+ 55.7	138

POTASSIUM					
Postop. Day	Intake	Output+		Balance	Serum Potassium Conc.
		Urine	Gastric		
OR*	40.2	91.1	7.3	-58.3	4.5
1	68.0	70.7	9.1	-11.9	
2	68.0	59.8	25.3	-17.2	4.3
3	68.0	79.6	11.9	-23.6	
4	68.0	80.0	6.9	-19.0	
5	68.0	101.8	3.6	-41.3	3.8
6	68.0	70.7	0	- 6.6	
7	32.2	55.2	0	-26.5	
8	53.6	68.8	0	-18.7	3.5

CHLORIDE					
Postop. Day	Intake	Output+		Balance	Serum Chloride Conc.
		Urine	Gastric		
OR*	210.7	189.2	80.6	- 59.2	104
1	72.0	92.8	106.4	-127.3	
2	72.0	17.3	328.5	-273.9	95
3	72.0	2.3	178.2	-108.6	
4	72.0	2.2	101.4	- 31.7	
5	72.0	1.0	60.6	+ 7.6	89
6	72.0	1.7	0	+ 68.1	
7	24.2	1.0	0	+ 22.9	
8	64.1	0.8	0	+ 63.0	89

* This day represents only the 12 hours from the time of admission to 6:30 a.m. the following morning.

\+ While the fecal values are not listed in the chart they were employed in calculating the balance.

amounts of calcium chloride are used for replacement therapy in these patients, the deficits of water and electrolyte can be corrected.

Similar alterations in intracellular and extracellular fluid compartments may result primarily from internal shifts of water and electrolytes with concomitant deficits due to an inadequate intake and external losses. Patients with paralytic ileus or large or small bowel mechanical obstructions are cases in which such alterations frequently occur. A diminution in the extracellular fluid compartment may occur in the presence of a normal or increased total body water as a result of an internal shift of fluid and electrolytes. This occurs when a non-sodium containing hexose or amino acid solution is given intraperitoneally or by hypodermoclysis[16-18]. These latter patients have extracellular dehydration in the presence of an overhydrated intracellular compartment. These patients clinically resemble patients who are dehydrated because of external losses. It is therefore apparent that sodium containing solutions must be given intravenously for correction of this state. Fluid with a chemical composition similar to interstitial fluid shifts into burned or traumatized tissues. Randall[6] has fittingly called the internal shift of fluid, which is functionally not available, a "third space." In 1905, Sneve[19] demonstrated that hemoconcentration and the reduced plasma volume could be corrected in burned patients who were given adequate amounts of normal saline. The work of Underhill[20] and Davidson[21], twenty

years later, substantiated his report. It has been shown, both experimentally[22-25] and clinically[26, 27] that the administration of a solution which chemically resembles interstitial fluid in an effective method of treating patients who develop such shifts ("third space").

Since in burned patients the "third space" is obvious as edema and blister fluid, it is evident that large volumes of electrolyte containing solution are needed for proper replacement therapy. However, the fact that comparable amounts of a similar fluid should be given to the patient with peritonitis, strangulated or mechanical intestinal obstruction, and following trauma has not been widely recognized.

Recently, a 26 year old man was admitted to the University Hospitals of Cleveland complaining of abdominal pain. Until about seven hours prior to admission this patient had been in excellent health, eating well and working daily. Three hours after retiring he was awakened by severe abdominal pain. After being admitted to the hospital he vomited approximately 250 ml. and stated that he had had an emesis of a similar amount shortly after the onset of his illness. No flatus or stool had been passed since the onset of his pain. His temperature was slightly subnormal, pulse 120, blood pressure 84/50 and white blood count 16,500. The patient had not voided since retiring and 20 ml. of urine was obtained after the insertion of a Foley bag catheter. Urinalysis was essentially normal, the specific gravity high and the subsequent urinary output was only a few milliliters per hour.

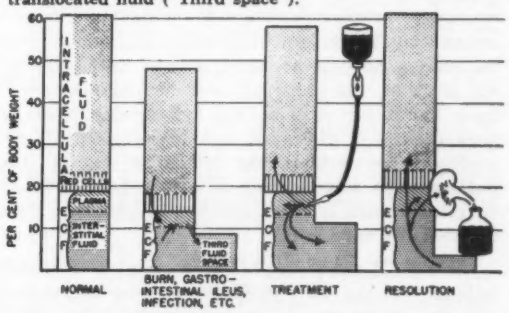
Because of the severity and persistence of his abdominal pain the patient was operated upon after receiving 5 per cent dextrose in normal saline and blood. At operation a strangulated closed-loop obstruction was found. Seven hundred ml. of sero-sanguinous fluid was removed from the peritoneal cavity. Because of marked distention, the small bowel was decompressed and over four liters of fluid was removed. It was estimated from the extent of the edema of the mesentery, omentum and intestinal wall plus the fluid which had been removed and that remaining in the stomach and upper intestinal tract that this patient had translocated over 9 liters of fluid during a 12 hour period. He was given 1500 ml. of blood, 6000 ml. of a sodium containing solution and 2000 ml. of 5 per cent dextrose in water during the first 16 hours after his admission. Following this therapy his blood pressure returned to normal, pulse rate decreased and urine flow increased significantly. It was apparent that the patient's critical condition within twelve hours after the onset of his illness was the result of a rapid translocation of approximately nine liters of fluid from the extracellular space into the peritoneal cavity and gastrointestinal tract which led to a decreased plasma volume, shock and oliguria.

Patients who develop a "third space" often have little alteration of their serum electrolyte concentrations since the translocated fluid has essentially the same electrolyte concentration as interstitial fluid[11, 13]. The hemoglobin concentration, red blood count or hematocrit (per cent cell volume) frequently does not mirror the reduction in plasma volume because of a pre-existing anemia or red blood cell loss[5, 26, 28] (hemorrhage, red cell destruction, or sequestration of red cells). Besides having an understanding of the amount and chemical composition of the various fluids which might be lost externally, it is well to keep in mind that translocations of from 5 to 10 liters of fluid derived from the extracellular phase may occur without being apparent clinically. A careful history, and physical examination, noting changes in the vital signs (pulse, blood pressure and respirations) and determining the rate of urine flow will usually make it possible to qualitatively and quantitatively provide the proper therapy.

Figure 1 shows schematically the alterations of the normal body fluid compartments by the formation of a "third space" and also depicts the effect of treatment and resolution of this abnormal space. If the translocated fluid is not removed from the body (by tube suction or external drainage), it will be reabsorbed and excreted by way of the kidneys during the period of resolution. During the period of reabsorption it is often

Figure 1

Development, effect of treatment and resolution of translocated fluid ("Third space").



necessary to limit the intake of fluid and salts (especially in the malnourished, cardiac, nephrotic or cirrhotic patient) in order to prevent the development of cardiac failure and pulmonary edema.

It is apparent that there are certain concepts concerning the nutritional alterations that follow operation that require re-evaluation. It has been stated[29, 30] that the nitrogen deficit or negative balance and loss of body weight which follows operation or accidental trauma is obligatory and, therefore, cannot be prevented or minimized. Many surgeons have also accepted the thesis that these deficits are almost entirely the result of the

Table 2

Patient: M.T., 62 year old male. Operation: Hemigastrectomy-vagotomy.

Postop. Day	Intake		Output			Nitrogen Balance	Cumulative Nitrogen Balance
	Calories	Nitrogen	Urine	Feces	Gastric		
OR	320	0	7.33	0.26	0.81	- 8.40	
1	600	0	14.62	0.26	1.93	-16.81	-25.21
2	600	0	12.83	0.26	0.45	-13.54	-38.75
3	600	0	11.85	0.26	0	-12.31	-51.06
4	600	0	11.54	0.77	0	-12.31	-63.37
5	426	3.1	10.84	0.77	0	- 8.53	-71.90
6	1691	11.2	9.40	0.77	0	+ 1.03	-70.87
7	1438	10.1	9.63	0.77	0	- 0.31	-71.18

Table 3

Patient: B.P., 59 year old male. Operation: Hemigastrectomy-vagotomy.

Postop. Day	Intake		Output			Nitrogen Balance	Cumulative Nitrogen Balance
	Calories	Nitrogen	Urine	Feces	Gastric		
-1	2049	13.2	11.0	2.4	0	-0.2	
OR	1200	0	7.0	.01	0.32	-7.3	
1	1200	0	12.0	.01	0.16	-12.2	-19.5
2	1200	0	12.0	.01	0	-12.6	-32.1
3	1200	0	13.5	.01	0	-14.7	-46.8
4	1200	0	14.0	.01	0	-14.3	-61.1
5	1033	8.9	8.7	.72	0	-0.6	-61.7
6	1450	5.9	14.7	.72	0	-9.7	-71.4
7	1365	9.5	11.3	.72	0	-2.6	-74.0
8	1670	11.0	12.1	.72	0	-1.8	-75.8
9	1784	12.2	11.8	.72	0	-0.3	-76.1
10	1488	10.0	10.3	.72	0	-1.0	-77.1

overactivity of the pituitary-adrenal axis and that the major portion of administered nutrients are not utilized. In contrast, we[31, 33] and others[34, 35] have found that such deficits can be minimized or prevented. It therefore seems pertinent to re-examine this problem and determine whether the patient with infection or following accidental or surgical trauma is benefitted by the administration of adequate nutrients.

Tables 2 to 5 show the results of nitrogen balance studies in four patients who underwent subtotal gastrectomy or hemigastrectomy-vagotomy. M.T. and B.P. received no nitrogen and three liters of a 5 and 10 per cent dextrose solution respectively on the day of operation and next four postoperative days.

It can be seen that during this five day postoperative period these patients had cumulative nitrogen deficits of 63.37 gm. (M.T.) and 61.2 gm. (B.P.). The magnitudes of these losses are essentially equal to the deficits that have been previously reported[32, 33] in other patients who had major surgical operations and received comparable

*Kindly supplied by the Upjohn Company, Kalamazoo, Michigan.

Table 4

Patient: J.C., 50 year old male. Operation: Hemigastrectomy-vagotomy.

Postop. Day	Intake		Output			Nitrogen Balance	Cumulative Nitrogen Balance
	Calories	Nitrogen	Urine	Feces	Gastric		
OR	2200	12.2	11.7	0.1	0.07	+0.3	
1	2500	18.33	23.6	0.1	0.20	-5.27	- 4.97
2	2500	18.33	20.4	0.1	0.15	-2.37	- 7.34
3	2500	18.33	22.4	0.1	0	-4.17	-11.51
4	2500	18.33	19.9	0.1	0	-1.67	-13.18
5	1012	7.74	15.1	0.8	0	-8.16	-21.34
6	1012	7.74	12.9	0.8	0	-5.96	-27.30
7	1012	7.74	11.0	0.8	0	-4.15	-31.45
8	2002	15.9	13.2	1.4	0	+1.3	-30.15
9	2002	15.9	12.3	1.4	0	+2.2	-27.95
10	2002	15.9	13.1	1.4	0	+1.4	-26.55

Table 5

Patient: F.A., 63 year old male. Operation; Subtotal gastrectomy.

Postop. Day	Intake		Output			Nitrogen Balance	Cumulative Nitrogen Balance
	Calories	Nitrogen	Urine	Feces	Gastric		
OR	1600	12.22	14.54	0.26	0	-2.58	
1	1600	12.22	14.07	0.26	0.70	-2.81	- 5.39
2	1600	12.22	15.29	0.26	0	-3.33	- 8.72
3	1600	12.22	15.45	0.26	0.90	-4.39	-13.11
4	1600	12.22	16.79	0.26	0.15	-4.98	-18.09
5	1600	12.1	9.25	0.52	0	+2.28	-15.81
6	1600	12.1	10.85	0.52	0	+0.68	-15.13
7	1600	12.1	9.16	0.52	0	+2.4	-12.73

therapy. B.P. (Table 3) who was undernourished in contrast to the other patients had a cumulative nitrogen deficit equal to that observed in M.T., who received a lower caloric intake and was in a normal state of nutrition.

Table 4 shows the nitrogen balance date obtained from a 50 year old patient (J.C.) who had a similar operation but was given a liberal nitrogen intake, 345 gm. of carbohydrate and 600 ml. of 15 per cent fat emulsion* daily until the fifth postoperative day when oral alimentation was begun. In contrast to the two previous patients his cumulative five day postoperative nitrogen deficit was only 13.18 gm. It is also evident that when he resumed an oral diet his calorie and nitrogen intake decreased and that the cumulative nitrogen loss for the fifth, sixth and seventh postoperative days amounted to 18.27 gm. Subsequently, he was able to eat an essentially normal dietary intake and a positive nitrogen balance promptly resulted.

In table 5 the results of another patient (F.A.) who had a subtotal gastrectomy performed are of nitrogen and 1600 calories daily, and he also was given 250 mg. of an anabolic hormone (Depo-Testosterone Cyclopentylpropionate*) on the day prior to surgery. Although this patient had an

operation which was comparable in magnitude to that of the previous three patients and a temperature elevation (38 - 39 degrees Centigrade) for several days, due to a postoperative atelectasis he had a postoperative five day cumulative nitrogen deficit of 18.09 gm. and a seven day cumulative deficit of only 12.73 gm. A decrease in the nitrogen deficit was believed to occur following the administration of testosterone propionate to burned patients[31] and equally as good results have been found in eight additional patients following a major surgical operation. When testosterone propionate or one of the longer acting derivatives is employed it is best to limit the sodium intake to 50 mEq. or less daily to avoid retention of this ion. Obvjously if the external sodium losses exceed 50 mEq. due to vomiting, gastrointestinal drainage or diarrhea, more sodium should be given to compensate for such abnormal losses.

It seems apparent from these studies and comparable observations in other patients that the wasting of nitrogen and body tissues can be minimized or significantly decreased if adequate nutrients are provided.

In summary, the following conclusions seem justified from these and other studies.

(1) Gastric secretions contain relatively comparable amounts of potassium (5-15 mEq. per liter) less sodium (15 - 80 mEq. per liter) and a greater amount of chloride (120 - 155 mEq. per liter) than does plasma. When there is a loss of gastric fluid a compensatory renal excretion of sizeable quantities of fixed-base occurs as long as there is adequate hydration and renal blood flow. The deficits of fluid and electrolytes which develop in patients with peptic ulceration losing moderate to large amounts of gastric juice can be corrected by the administration of an amount of normal saline solution equal to the volume of gastric fluid lost. Since approximately 5-40 mEq. of potassium may be lost in the gastric fluid and 40-100 mEq. secreted in the urine, 60-120 mEq. of potassium, preferably as potassium chloride, should be given daily to such patients when a normal urine flow has been established.

2) Serious circulatory collapse not infrequently occurs primarily as a result of the internal shift of fluid. It is well to remember that the resultant hypotension may occur with little or no external loss of fluids and electrolytes. An awareness of the volume and composition (comparable to Ringer - Lactate solution) of such translocated fluids is necessary if prompt and adequate therapy is to be given. (3) It is our impression that a large part (approximately 70-90 per cent) of the nitrogen deficit following major surgery is the result of "starvation" regimens commonly employed. From studies that are now available it seems that the nitrogen deficit and wasting of body tissues can be largely prevented if adequate nutrients are given parenterally during the time that a full diet cannot be taken by mouth. If testosterone propionate is given in conjunction with only a modest caloric and nitrogen intake the wasting of body tissues and the nitrogen deficit can also be minimized or prevented.

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Acute Renal Failure

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The term "acute renal failure" is usually applied to the clinical syndrome following an episode of renal ischemia, in which there is a sudden gross diminution of urine formation succeeded by recognizable periods of oliguria, diuresis and potential recovery.

The thirty cases, whose apparent cause and ultimate outcome are shown in Figure 1, were selected from some fifty patients seen because of acute suppression of urine formation. Twenty cases have been excluded from this figure on the basis of pre-existing hypertensive disease, pre-existing renal disease, acute glomerulonephritis, and patients who responded to prompt treatment of dehydration, hypotension or salt depletion by a rapid increase in urinary output. A sixth of the cases were due to intravascular hemolysis, of which only two followed actual gross blood mismatches; the others occurred in situations where sensitization followed pregnancy or previous transfusions. Another major group of cases were those occurring post-operatively, usually with associated shock, dehydration or hemorrhage. The remaining cases comprise a heterogeneous group of poisonings, burns, accidents of pregnancy, accidental ureteral ligation and a case of acute pancreatitis. Of the thirteen deaths in this series, six were due to infection, four due to cardiovascular failure, two due to potassium intoxication, and one case which is perhaps best classified as hepatic coma.

Figure 2 shows the usual renal and clinical accompaniments of the onset phase of an acute renal failure. In many instances shock, haemorrhage or trauma is evidently the precipitating event. There need not be systemic hypotension and in the intravascular hemolysis group there is often an actual elevation in systemic pressure with a narrowing of pulse pressure. Whatever the apparent cause, the common denominator in acute renal failure is profound renal ischemia[1] with an accompanying fall in renal blood flow, in glomerular filtration rate and urine formation. Renal ischemia is followed by a scattered dissolution of renal tubular cells (tubulor-hexis), which may occur throughout the nephron unit anywhere from the glomerulus to the collecting tubules[2]. These lesions are usually accompanied by destruction of the tubular basement membrane and exudation of fluid out into the renal perenchyma. In addition to

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Figure 1

Apparent precipitating events and outcome in 30 cases of acute renal failure.

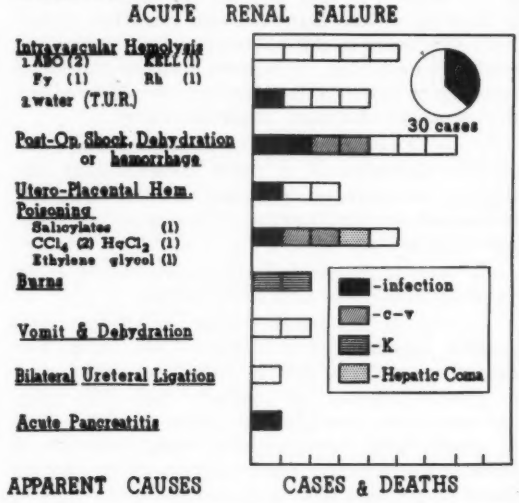


Figure 2

Onset phase of acute renal failure.

ONSET PHASE

Clinical
1. Shock - hypotension, peripheral collapse'.
2. Elevation in B.P. - intravascular hemolysis.
3. Falling urine output.

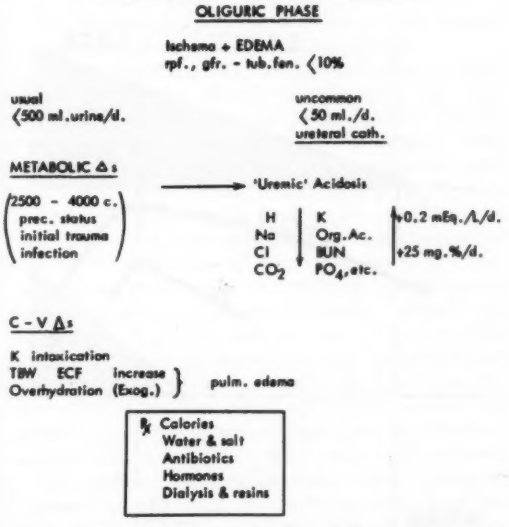
Renal ISCHEMIA
Renal blood flow ⇩ gfr ⇩ - tubulorhexis (random) } INTERSTITIAL EDEMA
Nephrotoxic lesions (proximal)

Usually unrecognized
Serial measurement of urine output.

℞ Fluids - blood
Blocking agents ?
Nor adrenalin No!

these ischemic changes, extensive proximal tubular damage may be produced by the nephrotoxic agents such as the mercuric ion or carbon tetrachloride. The only clinical clue to the occurrence of these renal changes is the failure of the patient to re-establish a urine output in spite of adequate therapy for his shock, dehydration, etc. By the time the diagnosis is ordinarily made the renal lesion has progressed to the edematous stage and there is little that one can do about the renal lesion per se. There are two possible exceptions to this: cases with incompatible blood transfusions and cases in which there is a definite nephrotoxic agent acting. In the former, if the incompatible transfusion is accompanied by profound vasoconstriction and rise in systemic blood pressure, it seems reasonable that re-establishment of renal blood flow could be affected by the exhibition of potent ganglionic blocking agents. In the latter situation, the administration of British anti lewisite (BAL) in adequate amounts within an hour after the ingestion of bichloride of mercury has been shown to greatly decrease the incidence of acute renal failure[3].

Figure 3
Oliguric phase of acute renal failure.



Once the so-called oliguric phase has become firmly established (Figure 3) we can at least for the time being, dismiss any attempt to overcome renal ischemia and edema. Treatment during this phase is concerned with keeping the patient in status quo until such time as regeneration of renal tubules and return of renal function occurs, as in a good many cases it does. Urine volume is almost never nil during this phase, commonly being from 200 to 400 cc. per 24 hours. In those cases in which urine output is less than 50 cc. a day we have made it a practice to have ureteral catheters inserted, on the assumption that these very low urinary outputs not uncommonly may be associated with obstruction of the urinary tract. Of three cases in which this procedure was carried out, one was found to have had the ureters accidentally ligated during pelvic surgery, one had a solitary kidney with extrinsic obstruction and the remaining case was subsequently shown to have bilateral cortical necrosis.

From the discussion that has taken place this morning it is abundantly clear that in most patients with acute renal failure there will be a general increase in metabolic processes. The magnitude of this metabolic response will obviously be conditioned by the preceding status of the patient, the extent of the initial trauma and the presence or absence of infection. Most of these individuals are probably utilizing somewhat in excess of 2500 calories a day, and in burned patients and others with extensive trauma this probably rises to at least 5000 calories a day[4]. This increased caloric consumption will go on irrespective of whether or not there is an exogenous source of calories. Since the body contains little in the way of carbohydrate reserves, increased energy will be derived from the metabolism of fat and, to a certain extent, of protein. In the absence of an appreciable renal function these changes will lead to what may be termed "uremic acidosis" during the oliguric phase. Biochemically this is accompanied by an increase in the plasma concentrations of potassium, organic anions and blood urea, with a depression in blood pH, sodium, chloride and CO_2 combining power. Much of the increased caloric turnover in these individuals is provided by body fat reserves. Since fat is virtually electrolyte-free, there will be an increase in endogenous water release. The burning of each gram of fat is accompanied by the release of approximately an additional cc. of water. This may in part be responsible for the falling plasma levels of sodium and chloride and to the expansion of extracellular fluid space which occurs in this situation, and which is not infrequently accompanied by pulmonary and systemic edema.

Treatment during the oliguric phase is primarily concerned with supplying sufficient carbohydrate calories to minimize protein catabolism, the prevention of infection and avoidance of overdehydration. Most of the early cases in this series received a modified Bull[5] or Borst[6] regime of oral or tube feeding, containing a high glucose and a high fat content. Many of these patients do not have an intact gastrointestinal tract. Hence, an adequate intravenous fluid regime is necessary, depending, of course, upon the water requirements of the individual. Since most of these patients are either going to recover or will be dead within a week or two, there is probably no great virtue in attempting to supply an exogenous source of fat calories unless the individual will tolerate this

regime orally. The successful administration of hypertonic glucose solutions requires an indwelling venous polyethylene tube, preferably inserted into one of the large veins of the arm and threaded so that the tip of the catheter lies either in the subclavian or the superior vena cava. With a slow continuous infusion given in this fashion we have had little trouble with intravascular hemolysis or thrombophlebitis, even though these tubes have remained in place from ten days to two weeks.

Individuals with infection do poorly during acute renal failure and it has been our routine practice to administer antibiotics prophylactically.

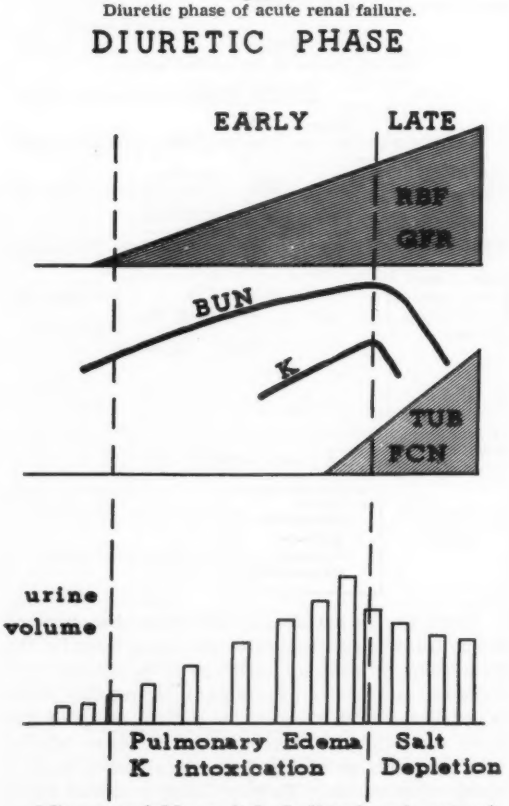
Insulin has been used to cover the intravenous administration of hypertonic glucose solutions. However, at the slow rate at which the glucose is administered in most regimes this is probably unnecessary, and it can be shown that hypertonic glucose solutions alone are quite capable of reducing extracellular potassium concentration even though there is no urinary output. It would appear reasonable to use ACTH or cortisone in an attempt to alleviate the edema of the renal parenchyma. However, the catabolic response to the administration of these steroids, particularly in terms of potassium release, is a real contraindication and to date these preparations have proved of little value during the oliguric phase of an acute renal failure.

From a theoretical standpoint, testosterone proprionate may be of some value[7]. The rationale for its use is based upon its protein anabolic effect and also upon the experimental observation that hypertrophy of the epithelial cells of the renal tubules may occur following its administration. Testosterone is generally employed as: 50 mgm. intramuscularly on the first day, and 25 mgm. a day for a further 10 days. A time limit probably should be set because of evidence that the protein sparing effect is lost in about 10 to 14 days.

Water and salt requirements during oliguria will vary with extrarenal losses and the amount of water derived from endogenous sources when protein, fat or carbohydrate are metabolized. In general, water replacement is usually limited to 400 - 600 cc. per day for a 70 kilogram man, as a basic requirement plus a volume equal to exogenous losses; for example those from the gastrointestinal tract. As a rough clinical guide to the amount of water required, the daily measurement of body weight is perhaps as easy as any other method. In order to prevent overhydration, a daily weight loss of about one-third of a kilogram per day appears to be approximately correct. The aim in electrolyte replacement should be to repair pre-existing defects and then to maintain balance. Since serum potassium will almost inevitably increase in concentration, intake must be zero. The hyponatremia in this situation is possibly due either to the administration of sodium-free fluids or to the excessive production of endogenous water by the increased caloric utilization, and in most cases probably should not be treated by the administration of extra salt. It is difficult to be dogmatic about this and some workers do advocate the cautious correction of hyponatremia, especially where it is accompanied by an extreme degree of acidosis. The anemia of renal failure, which probably has its origin in depression of red cell formation or increased hemolysis, is best managed by transfusions of packed red blood cells, maintaining hemoglobin at approximately 70 percent.

Ancillary measures for the correction of defects in salt and water metabolism during oliguria include peritoneal and intestinal dialysis, exchange transfusions and the so-called artificial kidney[8]. Where these are available their use for lowering of abnormally-high serum potassium levels and possibly for the correction of overhydration has been of some benefit.

Figure 4
Diuretic phase of acute renal failure.



After a variable period of oliguria urinary output tends to increase gradually and, once it is above 500 cc. a day, the individual is said to be in the beginning diuretic phase. Figure 4 shows some of the

accompaniments to this return in renal function. Renal blood flow and glomerular filtration rate increase progressively before there is any demonstrable evidence of a returning renal tubular function. This is of some therapeutic importance inasmuch as a liter of urine may represent only 3 or 4 liters of glomerular filtrate and not the usual 150-160 liters. Hence, in spite of a fairly good urinary output, the blood urea nitrogen may continue to rise. Since the removal of urea from the body is solely conditioned by how much is filtered, this is the response one might expect. Serum potassium may also continue to rise early in diuresis and it is in this early diuretic phase that individuals are most prone to succumb to cardiovascular complications, attending overhydration or potassium intoxication. With a return of renal tubular function the daily urine volume may actually decrease somewhat and the metabolic disturbances of acidosis, hyperpotassemia and elevation in blood urea tend to return towards normal. In most of our cases salt depletion during the late diuretic phase was of relatively minor concern. This is not always the case, however, and certain individuals do tend to lose excessive salt in this recovery phase. The best way of providing for this salt is the daily urine measurement of sodium and potassium output, with more or less quantitative replacement on the following day.

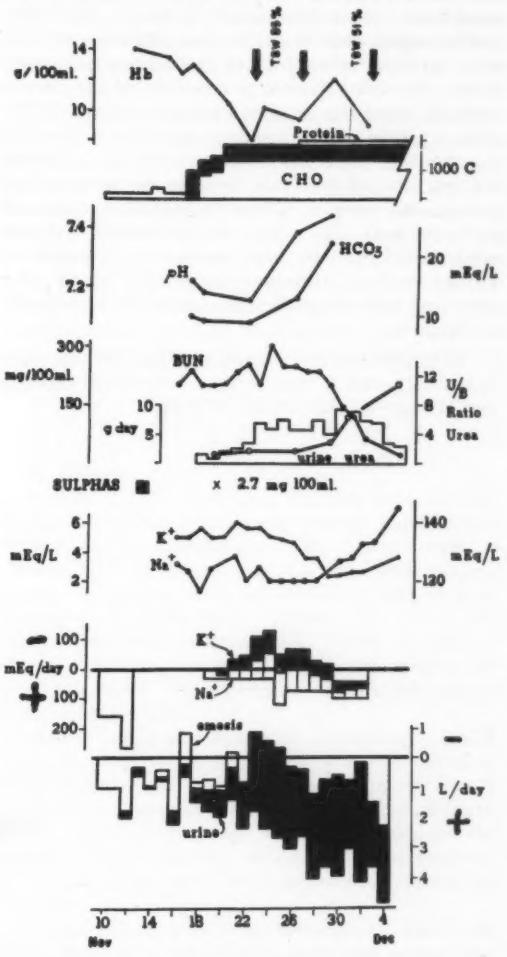
To briefly review the foregoing points, it might be worthwhile to consider the course of an individual case of acute renal failure. The 18-year old nursing aide whose pertinent laboratory findings are shown in Figure 1, was perfectly well until 1 Nov. 1955. At this time she had an episode of anorexia followed by nausea, vomiting and diarrhoea. She was admitted to hospital on the 10th of Nov. because of increasing epigastric discomfort and persistence of vomiting. Examination disclosed a diffusely tender abdomen. W.B.C. was 15,000, Hb 14 grams, S.R. 46 mm. She received intravenous glucose and saline, also amphogel and sedation, with little apparent clinical improvement. On 13th Nov. she was noted to have an exudate over the posterior pharyngeal wall which was thought to be diphtheretic. She then received a triple sulpha preparation (total dose 3 grams) followed by penicillin and was transferred to the Municipal Hospital as a suspect case of diphtheria.

On arrival there the patient was conscious, but lethargic, showed some peripheral cyanosis and was breathing deeply. B.P. 140/70. There was an exudate over both tonsils and the abdomen was generally tender. Smear, and later culture, of tonsilar exudate showed no diphtheria organisms. Urine output was 60 cc. for the first 24 hours and serum chemistry as shown in Figure 5, showed a uremic acidosis; B.U.N. 180, arterial pH 7.20, CO_2 10 mEq/L.

With this clinical picture and laboratory findings it was difficult to tell whether this individual

Figure 5

The course of acute renal failure (subject J.B.). The U/B urea ratio used here is a measure of renal tubular function. The low values indicate poor tubular function; normally ratios greater than 100/1 obtain, especially with low urine flows. The bottom two panels show salt and water balance; intakes are plotted downwards from the zero base-line and outputs upwards from intake. Since potassium intake was zero, only sodium intake is plotted, while the output of both these ions is shown.



had an acute renal failure secondary to the preceding episode of gastrointestinal upset, possibly complicated by sulphonamide sensitivity; or whether the whole picture was one of chronic renal failure. In retrospect, some lead to this was gained by a perusal of what happened to the hemoglobin. On admission to the first hospital, when she was only moderately dehydrated, hemoglobin was 14 gm. and subsequently fell over the next two weeks to 8 gm. Unless a patient with chronic renal failure has been receiving treatment or the failure is relatively mild, it is unusual for him to have a near normal hemoglobin with the degree of uremic acidosis displayed by this patient.

She was placed on a regime of 2500 calories daily, salt-free, consisting of glucose and some fat. This was fed orally as by now there was little gastrointestinal distress. Over the next week there was a progressive increase in urinary output coupled with clinical deterioration. The patient developed subconjunctival hemorrhages, some peripheral edema, fluid in the abdomen, the radiological appearance of pericardial effusion and had some hiccups, but no further gastrointestinal upset. Blood chemistry showed persistence of her uremic acidosis, some rise in serum potassium and B.U.N., with a fall in serum sodium. Salt intake was nil for the first four days. Thereafter she received 3-4 gm./day of $NaHCO_3$ because of acidosis and low plasma sodium. Three transfusions of packed red cells were also given. Sulphonamide crystals were found on only one occasion in spite of repeated testing. However, some two weeks after receiving sulphonamides the serum level was still 2.7 mgm%.

If sulphonamides played any part in this case, it is likely that it represents a sensitivity reaction rather than sulphonamide blockage.

With continuation of diuresis this girl's clinical status improved and her chemistry returned towards normal. There was no marked renal salt loss during her diuresis. At the end of her hospitalization renal function was about 20% of normal, as assessed by urea clearance and P.S.P. excretion. Renal biopsy some months later suggested near complete anatomical repair of the renal lesions. Currently she has some nocturia and shows a trace of proteinuria at all times.

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Management of Acute Deficiencies of Water and Electrolytes in Infancy

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Pediatricians were the first medical group seriously interested in these disorders. However, as you have seen today, they no longer have the field to themselves. The internists invaded it and then that elite group of operators, I call, the enlightened surgeons. This symposium is on the practical aspects of electrolyte therapy and I will try to stay within the title—however, certain fundamental information is mandatory for all therapy.

Although the jargon of those writing on fluids and electrolytes would lead one to believe that there is some exactness to this therapy, nothing is farther from the truth. In practice one makes an intelligent guess of the probable deficits and then heads the patient in the proper direction. There is some exactness about the diagnosis, but the treatment is accomplished by feeling your way along—sort of playing by ear. The wisdom of the body permits this method to function well.

In arriving at the probable deficits the history and clinical picture are of prime importance and the laboratory confirmatory only—for instance—the history of diarrhea and vomiting must of necessity lead to acidosis, as we shall explain later. This is confirmed by the pH and CO_2 measurements of the laboratory. The extent of the water and electrolyte depletion is better arrived at by the physical examination and a record of weight loss than it is by laboratory measurement. Admittedly, the levels of the substance in the plasma may carry prognostic significance and some direction as to therapy, such as the high serum Na of hypertonic dehydration and occasionally in small children the pH and CO_2 content of the plasma may be diagnostic where a history is inadequate and the respiratory status of the patient in doubt, (e.g. respiratory alkalosis of salicylate poisoning). However, for the most part one can proceed with treatment on the basis of the history and physical examination.

Nature has protected the physician and the patient in the majority of instances by providing adequate homeostatic mechanisms, mainly good renal function. This takes the place of a good clinician within certain limits, and is the reason why good results can be claimed for various regimes of therapy in a single disease. With renal function intact the homeostatic limits are wide and the therapy simple. With impaired renal or cardiovascular function of a major degree homeostasis is impaired and therapy is difficult.

The indications for fluids by other than oral routes are straightforward. They should be used only when fluid cannot be taken by mouth in sufficient quantity to maintain adequate hydration. States of persistent vomiting or extraordinary losses of fluid (usually by bowel) make this therapy a necessity.

In arriving at the volumes and concentrations of fluids and electrolytes to be given we must know the order of magnitude of the usual losses via normal channels, the continuing abnormal loss, and an approximation of the losses incurred prior to treatment.

The fluid requirements of an individual are related to the metabolic rate — the calories expended. This is proportionately larger on a weight basis in infancy than in adults for the area per kilo is about double that of the adult and the calories expended per kilo also double. This increase in metabolic rate presents the kidney with more solutes for excretion and makes the water loss via the urine greater. The increased metabolic rate provides for a greater loss via sweat and increased respiration rate with consequent loss via the lungs.

The usual channels of loss are:

1. Sweat and lung (Insensible loss)
2. Urine
3. Bowel.

Ordinarily the first two amount to about 500 cc./sq. metre/day, but are increased markedly in a hot moist atmosphere. The urine loss of 1000cc./sq. metre/day may be extended tremendously in states such as diabetes insipidus or temporary insufficiency. Losses via these two sources contain minimal salt. This is true of sweat and lungs—urine salt loss will usually be at a minimum. Replacement of this loss would require only water.

Bowel losses are normally exceedingly small. They are electrolyte containing, and this varies in concentration with the site of loss, stomach higher in chloride, pancreas higher in K and bicarbonate. In diarrheal disease or intestinal drainage the volumes may become enormous. Replacement of these fluids requires electrolyte containing solutions.

As previously stated the homeostatic limits are wide (Fig. 1). This is fortunate for doctor and

Figure 1

HOMEOSTATIC LIMITS IN PARENTERAL FLUID THERAPY*

	"Floor"	"Ceiling"
Glucose	75 grams/sq.m./24 hrs.	350 grams/sq.m./24 hrs.
Sodium	10 mEq. /sq.m./24 hrs.	225 mEq. /sq.m./24 hrs.
Potassium	10 mEq. /sq.m./24 hrs.	225 mEq. /sq.m./24 hrs.
Phosphorus	0.3 grams/sq.m./24 hrs.	2.0 grams/sq.m./24 hrs.
Water	0.7 cc/m.osm. solute	10.0 cc/m.osm. solute

* From Talbot et al (3e,8)

Presented at the Symposium on Practical Aspects of Water and Electrolyte Therapy, and sponsored by the Committee on Post-Graduate Studies, Faculty of Medicine, University of Manitoba, together with Baxter Laboratories, Winnipeg, Man., March 26, 1956.

patient for these life-saving fluids can be lethal if improperly used.

With these fundamental principles in mind let us move now to the specific therapy in infantile diarrhea.

To recapitulate:

(a) Is the intravenous therapy necessary?
(b) What are probable deficits?
(c) No K containing solution must be used unless renal function is established.

Acute Diarrheal Disease in Infancy

This is the commonest disease in infancy requiring fluid therapy. The acidosis of this disease is of multiple origin. The ketosis of starvation, the renal impairment of dehydration, and the loss of base in diarrheal stools. Darrow has defined the order of magnitude of these deficits by balance experiments. (Fig. 2).

Figure 2

Diarrhea Deficits (Darrow)

H_2O	=	100 gm./Kilo
Na	=	9.5 mm./Kilo
Cl	=	9.2 mm./Kilo
K	=	10.4 mm./Kilo

An estimate of the severity of dehydration can be made on clinical grounds. Loss of 5% body weight equals mild dehydration, 10% body weight moderately severe, and 15% is accompanied by shock.

The solutions used must first expand the circulating volume and establish urine flow. To do this, plasma expanders or blood could be used but in practice we use a saline-lactate mixture. The use of normal saline is not ideal as the excessive chloride in this solution aggravates the acidosis. This is especially true in the premature. The solution we use at the Children's Hospital of Winnipeg is saline, 2 parts, and 1/6 molar lactate, 1 part. This has a sodium content of 158 meqs./litre and a chloride content of 100 meq./litre. This is run in rapidly at 15cc/kilo/hour over a period of 1 hour. By this time urine flow is established in most cases and we may now add a solution containing K, Na, and Cl (Fig. 3) to make up the deficiencies. We aim for 150-200cc/kilo/day over a period of the first 24 hours. This takes care of the usual losses (100ml/kilo — See Fig. 2) and makes up for about 50% of the water deficit in the first 24 hours. No great attention is paid to calories. The intravenous route is the one preferred. As the water loss is out of proportion to the salt loss, replacement is aimed at this. We therefore use a hypotonic solution designed not to exceed the homeostatic limits of the infant. Many of these are now on the market or can be mixed by yourself (Fig. 3). Fig. 4 shows the

Figure 3

Multiple Ionic Solutions

	Na	K	Ca	Cl	Lact	Mg	PO_4
Polyionic Solution	57	25	-	50	25	6	12.5
Butler's Solution	30	20	-	25	20	-	5
Darrow's Sol^{R} 1/1	60	17	-	51	26	-	-
E.C. Fluid	140	5	5	103	-	2	3
IC. Fluid	5	150	-	?	-	44	100

calculated treatment for a 7 kilo child with diarrheal disease.

Figure 4

7 Kilo Child Vol. 7 x 150 = 1050 cc.
Area = $1/3m^2$

	Mn.		
	Na	K	Cl
Lactate Saline 1:2 ---- 100cc.	15	0	10
Polyionic Solution ---- 1000cc.	57	25	50
Total ---------- 1100cc.	72	25	60
Deficits (Darrow) ------ 700cc	63	70	63

Vitamins B, C and K are given while the feeding is suspended and adjunct therapy for infection is given where indicated. On the second and third days the fluids are given by the oral route and in case of relapse the intravenous is started again.

The difficulties involved in the use of parenteral therapy are two:

(a) Overdehydration — due to excess water being run in over a short period.
(b) Renal Failure—This is the cause of death in many instances. Shutdown may be due to the initial disease or precipitated by excess non electrolyte containing fluids by clysis.

By this simple formula the I.V. treatment of diarrheal disease becomes understandable and easily applied no matter where one practices.

Medicine

Hypotonic Electrolyte Solutions in Diabetic Acidosis

Charles H. Hollenberg, B.Sc., B.Sc. (Med), M.D.

Introduction

Hypotonic electrolyte solutions currently play an important role in the fluid therapy of diabetic ketosis. This is due to an increasing acceptance of the principle that these solutions provide more physiological salt and water replacement than do infusions which are electrolytically isotonic with plasma. It is the purpose of this paper to explore the physiological basis of this principle. No attempt will be made to detail a plan of fluid therapy and the various schemes of insulin administration will not be considered.

Summary of the Acid-Base Changes in Diabetic Ketosis[1, 2]

The disturbances of hydrogen ion metabolism do not directly dictate the nature of the fluid replacement in this disorder, but a firm understanding of this aspect of the condition is essential in any discussion of this topic, and therefore a brief summary of these disturbances is presented at the outset.

Diabetic acidosis follows upon an inability of the body to utilize carbohydrate as an energy source. Energy is therefore provided mainly by increasing the oxidation of fat, this leading to abnormally rapid hepatic ketogenesis, which exceeds both peripheral utilization and renal excretion of ketone bodies. Accumulation of these substances in the blood occurs, and this results in a metabolic acidosis. Three mechanisms prevent the body from being overwhelmed by a drastic fall in pH, and these mechanisms are invoked by (1) the plasma and cellular buffering systems, (2) the lungs, (3) the kidneys. A state of partial compensation of the acidosis is produced by these mechanisms, in which there is a fall in the serum carbonic acid and bicarbonate concentrations and a variable fall in the bicarbonate/carbonic acid ratio and, as a consequence of this, a variable drop in blood pH.

The blood ketone level is greatly elevated in this condition, and the magnitude of this elevation may be gauged by the level of the "undetermined anions" in the serum. This fraction is in health composed mainly of phosphates and sulphates and its magnitude is determined by calculating the difference between the serum sodium concentration and the sum of the serum chloride and bicarbonate concentrations, the normal value lying between 5 and 10 mEq/L. In diabetic acidosis, due to the accumulation of ketones this value is greatly increased. The term "potential bicarbonate" is often used in this disorder to refer to the "undetermined anions," for on administration of sufficient insulin, the fall in concentration of this fraction is in magnitude roughly equal to the increase in concentration of the serum bicarbonate. On adding the existing bicarbonate concentration to the "potential bicarbonate" concentration, very often a figure is obtained that is in the normal range of bicarbonate concentration. It can therefore be seen that a low serum bicarbonate value, present in diabetic acidosis, is not necessarily an indication for the administration of alkalinizing solutions, for there is, under these circumstances, potentially a normal serum bicarbonate concentration, provided sufficient insulin is administered and dehydration adequately treated[3].

Summary of the Balance Changes of Water and Electrolytes in Diabetic Acidosis.

The changes in salt and water balance that occur during diabetic acidosis are more pertinent in a discussion of fluid therapy than are the aberrations of acid-base balance and hence will be discussed more completely.

Atchley et al[4] were among the first to conduct accurate balance studies on diabetics during withdrawal of insulin, and they were consequently among the first to show that during diabetic ketosis fluid is lost from within cells as well as from the extracellular phase.

Seldin and Tarail[3] were among the first to emphasize the consequences of hyperglycemia with respect to changes in the intracellular and extracellular fluid volumes, and this was again brought out by Peters.[5]. From the work of these authors, it is possible to provide a physiological explanation of the fluid disturbances associated with diabetic acidosis and hence to indicate the direction fluid replacement should take.

Glucose is not freely permeable across the cell membrane, and, hence, as hyperglycemia develops in diabetic acidosis, the effective osmotic pressure of the extracellular fluid rises. The result of the increase in tonicity in this phase of the body fluid structure, is of course, a migration of water from the intracellular to the extracellular compartment. As hyperglycemia increases, this migration necessarily becomes greater in magnitude, and the body cells are subjected to a progressive dehydration. The ionic components of the extracellular fluid are diluted by this influx of water from the cells, this partially explaining the low serum sodium values present in this disorder.

Hyperglycemia, however, has yet further coincident consequences. Very early in the development of diabetic acidosis, glucose is filtered in excess of the renal tubular reabsorptive capacity for this substance and hence is free to act in the

renal tubule as an osmotic diuretic. Ketone bodies and products of protein breakdown also present for excretion and these particles enhance the diuresis that removes large quantities of water and electrolytes (mainly sodium) from the body. The urine formed is hypotonic and although the urinary sodium loss is severe, water is lost in excess of sodium, relative to the plasma concentration of that ion. Sensible and insensible perspiration are other avenues of hypotonic fluid loss, while vomitus, which may be of considerable volume in this disorder, approaches isotonicity. The net effect of all these avenues of fluid and electrolyte removal in diabetic acidosis is a loss from the body of water in excess of sodium.

It is thus evident that, although the extracellular fluid receives water from the intracellular phase as a consequence of hyperglycemia, extracellular fluid volume may be grossly depleted during acidosis due to urinary and various extrarenal losses. Extracellular and intracellular depletion therefore co-exist, water and predominantly sodium being lost from the extracellular phase, water and predominantly potassium being lost from the intracellular compartment.

Brief mention may now be made of potassium metabolism in diabetic acidosis. Since potassium is the major cation present within cells, states of increased cellular breakdown are associated with an increased excretion of potassium in the urine. If increased urinary excretion of potassium is due to cell breakdown alone, the ratio between urinary potassium and urinary nitrogen is in the neighborhood of 3 : 1. In diabetic acidosis, however, not only is urinary potassium excretion increased, but this ratio may be in the range of 6 or more[2]. Potassium therefore is lost from the body, in diabetic ketosis, in amounts greater than can be explained by the amount of protein breakdown that occurs. Since the major body reservoir of potassium is the cell, it is obvious that during diabetic acidosis intact cells are deprived of potassium for reasons that Bland[2] reasonably relates to disruption of carbohydrate metabolism and intracellular dehydration. This is supported by Elkinton's observations[6], which also suggest that the movement out of cells is frequently associated with hypertonicity and cellular dehydration.

Having discussed briefly mechanisms responsible for fluid loss and redistribution in diabetic acidosis, it is now possible to state what is required in the fluid replacement therapy. If cellular rehydration is to be accomplished and cellular metabolism restored, water must be provided in such a manner that it can reduce extracellular hypertonicity and be available for movement into cells.[2, 3, 1] Sodium, of course, must also be provided in order that extracellular fluid volume and hence circulatory homeostasis be improved, but excessive sodium administration must be avoided in order that a perpetuation of the hypertonic extracellular fluid state is not produced. Once carbohydrate metabolism and intracellular rehydration are progressing, potassium can be expected to move from without to within cells, and it is at this point that potassium replacement may be started without fear of raising serum levels to dangerous proportions. It is at this juncture also that other intracellular electrolytes, such as magnesium and phosphate, may be usefully infused. The reversal of the ketosis with insulin can be expected to restore normal bicarbonate levels, hence alkalinizing solutions are not required.

If extracellular fluid contraction is severe enough to produce symptoms of circulatory collapse profound in nature, the first object in therapy is, of course, re-establishment of this compartment and particularly of its intravascular phase. Under these circumstances, blood is an urgent requirement.

Brief Evaluation of Various Replacement Fluids

Having stated the requirements demanded of the replacement thrapy in diabetic ketosis, it is now convenient to examine some of the various available solutions with respect to their ability to meet these requirements.

(1) Physiological Saline: (0.9% Saline)

This solution consists of 155 mEq of sodium and 155 mEq of chloride per liter of water and is termed physiological because red cells may be suspended in it without change of cell volume. It provides sodium in a concentration greater than obtains in plasma and does not provide sodium and chloride in the same ratio that exists in extracellular fluid. The water that is provided by infusion of physiological saline is retained in the extracellular fluid compartment by virtue of the predominantly extracellular position of sodium, and, hence, not only is the extracellular fluid not diluted, but also water that is free to move within cells is not provided. The results of treatment of dehydration in diabetic acidosis with this solution alone, clearly indicate that cellular rehydration and, hence, re-establishment of cellular function are delayed[7].

Physiological saline, therefore, does not provide rational fluid or electrolyte replacement in diabetic acidosis due mainly to its lack of osmotically unbound water and to its excessive sodium content.

(2) Hypotonic Saline and Glucose Mixtures

A mixture of equal parts physiological saline (0.9%) and 5% gluocse in water is advocated by several authorities as being of value in the fluid therapy of diabetic acidosis[3, 5]. A liter of such a solution contains saline in a concentration of 0.45 grams %, glucose in a concentration of 2.5 grams % and is, therefore, hypotonic with respect to saline and yet contains total solute in isotonic amounts. Osmotically unobligated water is available in such a solution only when the contained

glucose has been metabolized and this constitutes half of the volume of the solution, the other half being osmotically obligated to the contained saline. The proponents of this scheme feel that small to moderate amounts of glucose may be infused in diabetic ketosis without worsening intracellular dehydration and urinary losses, and may indeed even retard ketosis. In severe diabetic ketosis however, carbohydrate metabolism is minimal and under these conditions glucose is not an ideal vehicle for water.

This solution therefore provides water in excess of sodium, but binds this excess water to a carbohydrate that is poorly utilized under conditions in which this solution is used. This of course limits the availability of this water to the cells.

(3) Hypotonic Saline and Fructose Mixtures

Darragh et al[8] and Welt[1] support the use of equal mixtures of physiological saline (0.9%) and 5% fructose in water in the fluid therapy of diabetic acidosis, stating that fructose is a better vehicle for water in this condition than is glucose.

Fructose enters cells by phosphorylation under enzymatic control that is apparently independent of insulin and hence its use may circumvent one of the blocks in carbohydrate metabolism that is present in diabetic ketosis[8]. Fructose is therefore free to enter cells under circumstances in which glucose is not, and therefore water administered with fructose in diabetic acidosis is made more rapidly available for intracellular rehydration than is water administered with glucose.

It, therefore, appears that a solution containing equal quantities of 5% fructose in water and physiological saline is admirably adapted for use in diabetic ketosis for three reasons: (a) it provides a carbohydrate which is, at least, partially utilized without the intervention of insulin, (b) it provides osmotically unobligated water to repair intracellular dehydration and to reduce extracellular hypertonicity (c) it provides sodium in hypotonic amounts, thus preventing a prolongation of extracellular hypertonicity and yet enabling a repair of the sodium deficit to be accomplished.

(4) Hypotonic Multiple Electrolyte Solutions

All the above solutions considered are in total solute concentration isotonic with serum, even though the latter two contain electrolytes in hypotonic amounts. Butler, however, has devised an electrolyte solution, the total solute content of which is less than serum, and favors this solution for use in diabetic acidosis[9]. One liter of this fluid contains 100 mEq of sodium, 60 mEq of chloride and 40 mEq of lactate or bicarbonate, and has a total solute concentration of 200 milliosmols per liter as compared to the 310 milliosmols that are present in a liter of saline. One-third of the water in this solution is osmotically unobligated and therefore available for intracellular rehydration.

Several objections may be raised to this form of therapy. Administration of lactate or bicarbonate is in most instances unnecessary, as has already been pointed out, and indeed their inclusion in every liter of replacement fluid may conceivably result in a state of metabolic alkalosis, once insulin has reversed the existing acidosis. Theoretically there may be a hazard of hemolysis introduced by the use of large volumes of hypotonic solutions. Red cells however, begin to hemolyze in saline solutions whose strength approximates 0.42 grams %[10], and therefore hemolysis is unlikely when the equivalent of 2/3 strength saline is infused into an already hypertonic plasma.

Despite these objections, this appears to be an exceedingly useful replacement agent in diabetic acidosis in that osmotically unobligated water is immediately available to the cells following infusion, and in that sodium is available in a concentration commensurate with that in which it has been lost.

Summary

The physiological basis for the use of hypotonic electrolyte solutions is briefly discussed and the necessity for administering osmotically unbound water to effect intracellular dehydration is stressed. Various replacement solutions are examined to determine their applicability in reversing the negative balance of water and electrolytes that occurs in diabetic ketosis.

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Ophthalmology

Treatment of Eye Injuries*

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History

Important aid to diagnosis and treatment is frequently given by the case history In some cases such as chemical injuries, a detailed history must be deferred until first aid and preliminary treatment is given.

Pain is a frequent symptom and is typically found in corneal abrasions, foreign bodies of the upper palpebral conjunctiva, foreign bodies elsewhere on the globe and with lacerations of the eyeball. It is important to note that a small intra-ocular foreign body may not be associated with pain, and indeed may be symptomless in the early stages.

When diminished vision is reported by the patient, one must look for intra-ocular pathology such as a foreign body, primary or secondary iritis, lens opacity, intra-ocular hemorrhage, and glaucoma amongst other things.

Where there is a history of a copious discharge without visual loss and with a low grade stinging pain, a mucopurulent conjunctivitis is a likely possibility.

When the eye is irritable, without a history of a foreign body, a corneal erosion, entropion, trichiasis or APC virus infection may be considered.

Previous ocular disease may be very pertinent in the treatment and assessment of vision of injury cases; Diseases such as keratoconus, amblyopia with or without strabismus, and corneal opacities from previous injuries may be the actual cause of diminished visual acuity rather than the injury of recent date. Glaucoma, previously present in an injured eye, will affect very materially the treatment, and visual result, of the recent injury.

General health is also an important factor to be assessed as early as possible. Diabetes and hypertension as well as other general debilities often cause loss of vision which may be associated, in the patient's mind, with an ocular accident. It is important to note this to prevent future controversy.

The psychological factor may be important. Occasionally the symptoms continue long after the lesion has healed due to a faulty adjustment of the patient and his environment. The full time industrial physician or surgeon can often give valuable aid in such cases.

It is sometimes of importance to know what, if any, first aid has been given.

Preliminary Examination

Apart from injuries demanding immediate treatment (e.g. chemical burns), the vision is recorded before any treatment is given. If the patient wears glasses, the vision is recorded with the glasses on. If the vision is subnormal, record the vision in each eye with the pinhole aperture.

Armamentarium

It is worthwhile to stress the following obvious points:

Adequate illumination is essential. A good direct light source is required in most instances, but oblique illumination in a darkened room is invaluable for the detection of corneal abrasions and stains.

An ophthalmoscope with a plus 5 lens, or a retinoscope, enables the surgeon to visualize slight central corneal defects, which stand out in relief against the red fundus reflex, when the fundus is viewed from a distance of 5 or 6 inches. By this means, of course, other deeper defects are also discovered.

Magnification is of great value. A good loupe is most useful and the biomicroscope even more so.

Anaesthesia is a prime requisite to foreign body treatment. Pontocaine solution 0.5% (tetracaine hydrochloride) is satisfactory.

Sharp Instruments

In order to remove embedded foreign bodies, a fine pointed sharp knife or spud is essential. It is important to lift the foreign body out of the eye through a tiny corneal incision, rather than by means of a picking or scratching manoeuver.

Miscellaneous

Among the additional necessary items are: 2% solution of sodium fluorescein for staining the corneal epithelium, moist cotton applicators for removal of superficial foreign bodies, 2% silver nitrate for cauterization, Gundersen's solution for sterilization of a corneal lesion, Cocaine hydrochloride solution 4%, saline or distilled water and an apparatus for irrigation of the conjunctival sac.

Importance of Sterile Technique

A sterile technique is of utmost importance for the usual reasons. However, it should be noted that transmission of virus infections of the eye, by the treatment centre, has been frequently reported.

Foreign Body of the Cornea

The transparent structure of the cornea is of paramount importance in vision. It is essential to remove a foreign body with the minimum possible trauma.

It is most desirable that the patient report for treatment at the earliest possible moment, as the difficulties of removal and treatment and the occurrence of complications increase directly with the duration of the injury.

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A superficial foreign body may be easily removed with a moist cotton applicator. The cornea is then stained, and if an abrasion has occurred, an eye pad is applied for 24 hours. In any case an antiseptic ointment such as 10% sodium sulfacetamide is instilled.

If the foreign body is embedded in the corneal epithelium, it is removed with a spud, taking care not to abrade the epithelium unnecessarily.

A foreign body more deeply situated is removed with a sharply pointed spud. The point is inserted into the cornea at the margin of the foreign body and the latter lifted directly out in such a manner as to avoid excessive trauma to the cornea. All fragments of the foreign material are removed and the edges of the corneal wound are made clean-cut to avoid infection.

A rust ring left by an iron foreign body is removed entirely, if feasible, as otherwise healing is delayed. It is important to avoid excessive curettment in this process, as it is better to leave a bit of the rust than to damage the cornea unduly. Where the rust ring is difficult to remove, a second trial 24 hours later may be made as the lapse of time enables the foreign body reaction of the cornea to soften up the rust stain. Another useful measure is the application of 2% Silver Nitrate to the rust stain. This softens the rust stain and facilitates its removal. Occasionally a dental burr will be useful for removal of the rust stain.

If the foreign body is very deeply embedded, one must be careful not to push it into the anterior chamber of the eye. In such cases, a broad corneal knife or keratome is inserted into the corneal layers from one side so as to come to rest deep to the foreign body. The foreign body is then removed in the usual manner.

If the foreign body is magnetic, its removal may be facilitated at times by the use of a powerful magnet.

When the foreign body injury has been extensive or of long duration and the possibility of infection is great, the site of the foreign body is treated with Gunderson's solution and neutralized with Cocaine 4% solution.

Where the foreign body has been more or less deeply embedded, and when considerable manipulation has been required, atropine 1% ointment is instilled into the eye as well as an antibiotic or antiseptic ointment, and an eye pad applied. As the patient may have pain, it is usual to prescribe Butyn and Metaphen ointment. The patient is re-examined every 24 hours for as long as necessary, in order to treat complications if they occur. It is advisable to tell the patient to instill the antiseptic ointment three times daily for several days after the corneal lesion ceases to take a stain with fluorescein, as the epithelium is delicate and may be easily abraded for some time following injury.

Foreign bodies located near the centre of the cornea must be removed with great care, as a scar in this region will affect the visual acuity.

At the time of the last visit, it is important to record the visual acuity and assess the amount, if any, of visual loss.

Foreign Body of the Conjunctiva

A foreign body superficially placed on the bulbar or palpebral conjunctiva is easily removed with a moist cotton applicator. It is important to thoroughly search the upper cul de sac, as otherwise a foreign body may be missed. The use of a lid retractor is essential for this purpose.

A more deeply embedded conjunctival foreign body is removed with a sharp instrument as described for similar corneal foreign bodies.

The instillation of an ointment such as penicillin or sodium sulfacetimide 10%, is routine. An eye pad is not required.

Blepharoconiosis and Keratoconiosis

Where a worker is exposed to fine powdery particles, a low grade irritation of the conjunctiva and cornea results. The onset and development of both pinquecula and pterygium are facilitated thereby. Phophylactic measures and symptomatic treatment are indicated in these cases.

Chemical Effects of Foreign Bodies

Multiple foreign bodies of the cornea and conjunctiva occur typically in blast injuries. It is often difficult to remove all the foreign bodies without excessive manipulation. In cases where the foreign body is relatively inert, some of the smaller foreign bodies are best left in situ. Where the foreign material exerts a deleterious chemical action, it is advisable to remove every particle.

Glass, plastics, gold, coal, stone and lead are relatively inert and are well tolerated by the tissues. On the other hand copper and iron are very irritating and cause degeneration of the affected tissues.

Chemical Injuries of the Eyeball

Chemical agents comprise 12 to 20% of Industrial hazards. In modern industry, the number of different noxious chemical substances is legion. The ocular damage is increased with the concentration of the chemical and with the duration of its action. As the chemical reacts only in solution, the more soluble the agent, the greater the ocular damage. As the epithelium and endothelium are lipophilic, they are somewhat resistant to water-soluble agents and susceptible to fat-soluble chemicals. The stroma of the cornea is hydrophilic, and so is susceptible to water-soluble chemicals and resistant to fat-soluble agents. Some substances are both water and fat soluble and so penetrate the ocular tissues deeply and cause the most damage.

Acids are usually water soluble and so do not penetrate the ocular tissues deeply, and are therefore more amenable to treatment. Alkalis are also

water soluble, but saponify the epithelium and so penetrate deeply into the tissues because once the lipophilic epithelium is transversed the passage into the hydrophilic stroma is unimpeded. Sulphur dioxide, ammonium hydroxide, mustard gas and detergents are examples of water and fat soluble substances and are very damaging to the eyeball.

In addition to the above, the chemical properties of the noxious agent exert important effects, which cannot be discussed at this time.

Treatment of Chemical Injuries

With a few industrially unimportant exceptions, neutralization of the chemical agent is not feasible. Therefore the treatment of greatest value is immediate copious irrigation of the eyeball and cul de sac with water, in order to dilute and to wash away the noxious agent. Undissolved particles must be removed by means of a cotton applicator.

It is important to restrain the use of local anesthetics as these drugs damage the corneal epithelium and render it more susceptible to chemical damage and retard the reparative processes. Pontocaine solution 0.5% is recommended, where relief of pain is necessary to lessen blepharospasm to enable the surgeon to inspect and treat the eye injury.

It is well to remove contaminated necrotic conjunctiva and corneal epithelium. The resulting defect may be covered with dry fat-free human amniotic membrane or egg membrane.

The usual ocular measures such as rest and the instillation of atropine and antibiotic ointments are performed. It is notable that Penicillin ointment may retard epithelial regeneration.

Relief of pain is best accomplished by systemic measures.

Having carried out the initial treatment, our attention is now directed to the prevention or amelioration of the later effects. These consist in the main of the excessive scar tissue development with resulting deformity such as symblepharon, entropion and blepharophimosis.

A common treatment is to pass a vaseline-coated glass rod between the eyelids and the eyeball at each dressing. The early excision of necrotic conjunctival tissue, with mucous membrane grafting of the defect, is more efficacious.

In the event of serious corneal scarring, a lamellar corneal transplant may be performed after a suitable time interval. Due to the vascularization which follows severe chemical burns the graft often becomes opaque, but a perforating keratoplasty may be performed later, and has been know to remain clear.

Hydrocortisone drops may be of value in the earlier treatment phase to lessen scar tissue and new vessel formation.

In the later treatment stage, Beta radiation may be of value in the treatment of corneal opacities due to neo-vascularization.

Lacerations of the Eyelids

Usually heal well due to the abundant blood supply. When the laceration is extensive, or if it tends to gape, a careful closure with fine silk interrupted sutures will promote rapid healing.

Lacerations of the Cornea and Sclera

Large perforating lacerations of the cornea and sclera require suturing with fine black silk interrupted sutures. All foreign material should be removed and if an iris prolapse is present, the extruded iris tissue should be excised. It is important to obtain exact coaptation of the wound edges and magnification is of real help to this end. With a perforating laceration, the possibility of an intraocular foreign body should always be determined by roentgenography. It is important to dilate the pupil and inject air or sterile water into the anterior chamber to prevent the development of posterior and anterior synechiae.

A word of caution regarding the initial examination is appropriate here. I have experienced cases where the perforating laceration appeared to be minor, only to discover at operation that the laceration extended for considerable distance into the sclera and was concealed by oedematous bulbar conjunctiva. If the patient squeezes his eye or moves the eye unduly during the initial examination, the danger of loss of the eye from extrusion of the intra-ocular contents is very real. Moreover, the same complication may occur during the administration of a general anaesthetic before the surgeon has an opportunity to suture the wound. For these reasons I advise only a careful and brief preliminary examination and the application of a firm bandage to both eyes. The patient and the operating room are then prepared and prior to the administration of the general anaesthetic (if a general anaesthetic is necessary) the eyelids are immobilized by means of a careful Van Lint or O'Brien akinesia, and the eyeball is rendered quiet by a careful retrobulbar injection of novocaine. If one has the facilities, this is an ideal situation for the use of curare. The usual precautions to avoid infection are taken and the sutures are left in situ for 15 days as the corneal wound is not firmly healed prior to this interval.

Contusion of the Globe

Usually results from a blow with a blunt object, and results in a wide variety of ocular damage depending upon the severity of the trauma. Due to lack of time, the discussion will be limited to bleeding into the anterior chamber.

Hyphaema may be minor and consist of fluid blood and absorb quickly with rapid return of vision. However, on occasions, the surgeon is dismayed by the occurrence of a secondary anterior chamber hemorrhage which is severe and results in absolute secondary glaucoma, much pain and often loss of the vision in spite of all therapeutic

measures. I feel, therefore, that it is wise to treat even minor hyphaemas with due respect. I advise the patient to maintain both general and ocular rest and it is perhaps best to admit the patient to hospital and pad both eyes. Usually, the pupil is left undisturbed by the instillation of either a miotic or a mydriatic at the time of initial examination.

Where the hyphaema is mild and the secondary hemorrhage does not occur, treatment is simple and the visual result usually very good.

The secondary hemorrhage with glaucoma requires paracentesis of the anterior chamber and evacuation of the blood. Perhaps at this time eserine should be used to constrict the pupil. The paracentesis may have to be repeated, and there are cases where the hemorrhage promptly recurs each time. These cases almost always do poorly.

When the anterior chamber blood exists in the form of a clot, adhesions develop between the cornea, iris and lens and this together with occlusion of the angle of the anterior chamber results in secondary glaucoma. It is essential to make a keratome opening into the anterior chamber and remove the blood clots with a fine non-toothed iris forceps. If bleeding recurs, the keratome incision may be opened daily with a fine iris spatula and the blood evacuated.

Blood staining of the cornea, reducing the vision to light perception, occurs in the more severe cases, especially when secondary glaucoma is present and if the endothelium has been damaged. This will clear from the periphery towards the centre in a matter of many months, leaving some visual impairment.

There is much more to be said on this subject, but time will not allow further comment.

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Bacteriology

Orphan Viruses

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Introduction

Rapid advances have been made in the investigation of viral infections since Enders, Weller and Robbins[1] demonstrated that the poliomyelitis viruses could be grown in extra-neural tissue culture. The application of tissue culture to the study of virus infections and recent improvements in techniques have greatly facilitated virus isolations, as well as serological investigations and vaccine production. Two very important examples of recent advances in Virology, derived from the application of tissue culture, have been the isolation of two new groups of viruses, the Adenoidal - Pharyngeal - Conjunctival[2, 3] and the Orphans[4]. Neither of these groups of viruses could have been isolated in laboratory animals.

The Orphan viruses were first isolated from the human intestinal tract during the course of laboratory investigation of patients with poliomyelitis or poliomyelitis-like disease[5, 6, 7, 8, 9]. They produced a consistent cytopathogenic effect in tissue culture very similar to that of the poliomyelitis viruses, but failed to neutralize with poliomyelitis antisera or to produce disease in monkeys. They were non-pathogenic for suckling mice and could not be classified as members of the Coxsackie group of viruses. Since these procedures excluded the newly isolated agents from the two common families of enteric viruses, they were called "Orphan" or more recently "Enteric Cytopathogenic Human Orphan (ECHO)" viruses[10].

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Clinical Picture

Although Orphan viruses were first recovered from patients with aseptic meningitis or non-paralytic poliomyelitis, recent surveys have demonstrated the presence of Orphan viruses in the feces of 1.5-2.0% of normal children, the majority of whom were under ten years of age[11, 12]. Repeated isolations showed that ninety percent of the virus recoveries were made during the period from June to October. The other enteric viruses, Poliomyelitis and Coxsackie, were also isolated from the feces of 0.5 - 3.0% of the same groups of normal children during the same period.

Virology

Up to the present time more than 500 Orphan viruses have been isolated from widely spread geographic areas[13]. Not all have been classified, but to date 13 antigenically distinct types have been identified and classified as the Enteric Cytopathogenic Human Orphan group (ECHO). They share the following properties drawn up by a committee at the Conference on Orphan Viruses held in May, 1955[10].

"1) Cytopathogenic for monkey and human cells in tissue culture. All 13 prototype strains were isolated in cultures of monkey kidney cells, which for the strains tested proved to be more susceptible than Hela cells.

2) They are not neutralized by pools of the three types of poliomyelitis antisera.

3) They are not neutralized by antiserum for Coxsackie viruses that are known to be cytopathogenic in tissue culture, and they fail to

induce disease in infant mice. (Animals less than 24 hours old should be used as they have greater susceptibility).

4) They are not related to other groups of viruses recoverable from the alimentary tract, (throat or intestine) by inoculation of primate tissue culture such as Herpes simplex, Influenza, Mumps, Varicella, Measles and A.R.D. (Acute Respiratory Disease) and A.P.C. (Adenoidal-Pharyngeal-Conjunctival).

5) They are neutralized by human gamma globulin and by individual human serums indicating they infect human beings."

Many studies of ECHO viruses are now being carried out; it has been shown for example, that complement fixing antigen develops in the culture fluids of a number of viruses; all viruses tested are ether resistant; ultrafiltration (gradacol membrane) measurements indicate sizes for types 1, 2 and 3 to be between 11 and 17 millimicrons, type 10 between 60 and 90 millimicrons; plaque morphology shows that types 1, 3, 4, 5, 6 and 9 are distinctive and permit differentiation from poliomyelitis plaques[10].

During the past year we have isolated five cytopathogenic agents on Hela, monkey kidney and human amnion tissue culture having the general characteristics of the ECHO viruses. These isolations were made on stool specimens from patients who had symptoms referable to the central nervous system. The provisional clinical diagnosis in every case was Poliomyelitis or Coxsackie infection. All patients recovered and none showed residual paralysis. At present we are conducting further investigations and are making antisera in rabbits against each of these viruses to determine whether they are identical or different types. These isolations will also be submitted to the National Foundation for Infantile Paralysis for typing with standard antisera to determine if they are similar to one or more of the 13 types now recognized.

Summary

1) Orphan (ECHO) viruses are recoverable from feces of patients with aseptic meningitis as well as from normal persons.

2) They have been isolated from widespread geographic areas, most commonly during the summer months.

3) The precise relationship of the Orphan viruses to human diseases remains to be defined.

4) They have a number of features in common with other enteric viruses, Poliomyelitis and Coxsackie.

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Children's Hospital, Winnipeg

Ward Rounds

Symposium on Retrolental Fibroplasia

Clinical Luncheon, March 2nd, 1956

Edited by Wallace Grant, M.D.

I. Dr. I. H. Beckman:

Those of you who are well acquainted with the subject of today's discussion, please bear with me while I give a short background of this tragic disease about which two movies are going to be shown here today. This is a new disease which appeared on the scene in 1942. Both of the movies show that excessive use of oxygen is without doubt responsible for the development of this crippling eye disease. It is now the most common cause of blindness in young children and there are at least thirteen known cases in Manitoba. It occurs almost exclusively in premature infants weighing less than 3½ lbs., and approximately 50% of such infants have shown the active stage of the disease. Fortunately, 2/3 of these cases recover, but about 1/3 progress to the cicatricial stage and blindness.

When this condition was first recognized we had no idea of the cause. Many were suggested, 1) infection, (bacterial or viral) 2) avitaminosis, 3) lack of some hormone, 4) transfusions, 5) the exposure of the babies' eyes to light, 6) hypoxia or hyperoxia. Most of these were discarded. In 1952 reports from Australia and Britain suggested that this disease was due to exposing small prematures to excess of oxygen, both in duration and concentration. Because of its alarming rate of increase in certain areas in the United States, and also because of the various opinions as to its etiology, early confirmation or denial was needed.

That same year the American Academy of Ophthalmology conceived the idea of organizing a national co-operative study of R.L.F. The initial planning meeting was held under the auspices of the National Institute of the Blind. As a result of this meeting an organization was set up, and investigators from 18 hospitals agreed to pool their nursery facilities and interest and join in a co-operative study of the association between the incidence of R. L. F. and the administration of oxygen to prematures. They sought an answer to the following questions: 1) does duration and the amount of oxygen play a part in the development of retrolental fibroplasia; 2) does the survival of premature infants depend on the amount of oxygen administered.

The aim of the investigation was to find the incidence of R.L.F. in two groups of premature infants weighing less than 3½ lbs. These children were to receive oxygen for different periods of time and in different concentrations, but would otherwise be treated on the same routine. The first group was to receive oxygen in concentrations

of over 50% for 28 days. This was generally accepted, at that time, as essential in the treatment of premature infants. The second group was to receive either no oxygen or limited amounts prescribed on the basis of clinical urgency. Two hundred and four children were in this study group. The preliminary report was based on a six month study.

Dr. V. E. Kinsey, Chairman of the joint committee, recently made its preliminary report. In summary, this is what he said: 1) there was no significant difference in the mortality of the infants in the two groups. 2) The incidence of both the active and cicatricial forms of R.L.F., was significantly higher in the group which received the higher concentration of oxygen. The incidence of the cicatricial form was found to increase with the length of time the infant was exposed to oxygen. The critical period was the first ten days of treatment.

II. Dr. Howard Reed:

I have been assigned the task of dealing with two subjects. Firstly, the differential diagnosis of retrolental fibroplasia and secondly, the myopia of prematurity. Whilst there are many conditions which may be confused with retrolental fibroplasia, only three conditions are important in its differential diagnosis.

1) Retinoblastoma
2) Persistent hyaloid remnants
3) Metastatic endophthalmitis

Retrolental Fibroplasia

This condition has three important features. It is always associated with prematurity; it is always bilateral, and in the cicatricial phase the eyes are small. The early active stages of the disease occur during the first and second month after birth. On dilating the pupils fundus examination shows the eyes to be myopic in most cases and the retinal veins grossly dilated and the arteries tortuous. The retina is edematous and, particularly at the periphery, small raised greyish islands may be seen.

Later tufts of new vessels develop especially at the periphery and retinal hemorrhages occur. Vitreous hazes may obscure the fundus picture.

When the active phase has subsided and cicatrization commenced, the eye becomes small and varying degrees of retinal detachment may be seen.

It is now known that at least half the cases recover, and the vision of the eye remains practically unaffected, but the remainder show varying degrees of loss of sight, the more severely affected patients being totally blind. There is little difficulty in mistaking the early active phase, but there is sometimes difficulty in diagnosing the later cicactricial stages.

Retinoblastoma

This is a highly malignant new growth of the infantile retina. If a retinoblastoma is missed the child dies. If the diagnosis is wrongly made, an eye is lost unnecessarily.

It is usually unilateral, 25% of cases being bilateral. It is not related to prematurity, though this may be a chance association. The eye is normal in size, the lens is usually clear and examination with an ophthalmoscope reveals a whitish mass resembling cream cheese projecting into the vitreous. Radiological examination is helpful because 80% of these tumours contain calcium and shadows are seen on x-ray. These growths show a predilection for extension along the optic nerve so that the optic nerve swells. If the extension reaches the optic foramen then on x-ray it may be shown to be dilated.

Persistent Hyaloid Remnants

Again this is unilateral and prematurity is not related to the condition. The eye is usually normal in size and careful examination of the eye shows that the white mass consists of a connective tissue cordlike structure running from the region of the disc to the posterior pole of the lens.

Metastatic Endophthalmitis

This condition is almost never bilateral nor is it associated with prematurity. There is usually a history of a severe fever, meningitis or convulsions. The affected eye is usually small and soft and shows signs of shrinking. Very often the eye is somewhat inflamed and adhesions are present between the iris and the lens. A whitish mass is seen behind the lens consisting of organized vitreous.

Myopia of Prematurity

For some years comments have been made by various observers upon the fact that prematurity seems to be associated with a high incidence of congenital myopia.

Recently Fletcher and Brandon reported a study of 462 premature infants during a period of five years. They estimated the myopia by instilling a cycloplegic and examining the eye with an ophthalmoscope or retinoscope.

A group weighing over 1700 gms. at birth was found to be slightly myopic at birth but they rapidly became emmetropic in about four to ten weeks. The group of premature infants weighing less than 1250 gms. at birth were found to be myopic from ten to twenty dioptres and during the neonatal period this myopia was high and fluctuating from day to day. By about the sixth month these premature children had an average of six dioptres and they became emmetropic at the end of one year.

Another group of infants with retrolental fibroplasia were examined and these had a higher and even more fluctuant congenital myopia.

In a group of 22 cases of high myopia they found that 90% of them had evidence of having had retrolental fibroplasia and 90% of them were under three pounds weight at birth. They concluded therefore that prematurity was associated with a high degree of myopia at birth and that minimal retrolental fibroplasia increased the incidence.

On examining my own records I find that I have three cases of congenital myopia which were associated with prematurity. One of them was referred to me by Dr. Sidney Israels and this child had retrolental fibroplasia. Its birth weight was three pounds 11 ounces, and it had oxygen for two weeks. For many months it was considered that this child was blind but after a time it was obvious that the child was able to follow movements near its eyes and further examination showed that the right eye was highly myopic. When a myopic lens was prescribed for the right eye the child showed marked improvement. When last seen the mother said that she noticed that the child was able to follow aeroplanes in the sky and watch the flight of birds. The left eye was undoubtedly blind.

Of the other two one was premature by three weeks only. The other was eight weeks premature and had oxygen during the neonatal period but I am not sure of the length of time of administration of oxygen.

The consensus of opinion at the present time appears to be that there is no doubt that prematurity increases the incidence of congenital myopia and that the administration of oxygen increases the incidence still more.

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III. Dr. E. J. Briggs:

As has already been said retrolental fibroplasia is one of the commonest causes of blindness. Fortunately, Winnipeg has only a very few cases (approximately six). However, in Vancouver, where they suffered a severe "epidemic" of retrolental fibroplasia, a blind school has been started, where great strides are being made to train these children.

The training and bringing up of a blind child presents great problems to the parents. First,

they must accept many hindrances and delays which are due to lack of sight. Then they must accept a certain stigma placed on the child because the child is blind and the inevitable question which the child across the way would ask "Is he really blind?" affects the parents greatly, unless they can adopt a very reasonable attitude. They can get considerable help from the pamphlets produced by the Canadian National Institute for the Blind. These advise on many small techniques, such as the toys the child should have, and many things they can do for their child, and go a long way in encouraging them.

Unfortunately then, as we are situated, we have no blind school in which to educate the children, and our nearest is that in Brantford, Ontario, or the one in Vancouver. It seems to me that some provision will have to be made for children to attend one or other of these schools. To go to one of these schools and see the sort of thing the children are doing and the games that they can play is a great encouragement to parents of blind children. Every opportunity should be given to these people to visit such schools, or to see moving pictures about them. Here in Winnipeg the mothers of the children who are suffering from retrolental fibroplasia have formed a circle amongst themselves, and they meet periodically to discuss their common problems.

IV. Dr. H. Medovy:

The presentation and the discussion so far certainly leave very little alternative except to agree that oxygen is the most important single etiological agent in retrolental fibroplasia.

During the years when the incidence of this condition was as high as 10 - 20 percent of small prematures in large hospitals on this continent, the incidence at the Maternity Pavilion of the Winnipeg General Hospital was extremely small. We believe that we have had not more than five cases during the period since the Maternity Pavilion was opened in May, 1950. Some 1200 premature babies have been born there during this interval. If we assume that 30 percent of this number were under three and a half pounds, that is 360 infants who might be said to be at risk as far as retrolental fibroplasia is concerned, this would indicate an incidence of somewhat less than 2 percent. The reasons for this were not at first apparent. We used to think it was a geographical matter, and that the incidence was highest in large hospitals along the coast. We know now that the low incidence was probably due to the fact that we had to exercise extreme care, for economic reasons, in the use of oxygen. We have therefore restricted its use from the start, without knowing that in doing so we were lessening the risk of retrolental fibroplasia.

Our procedure at the present time is to use a Beckman Oxygen Analyzer in the Premature Nursery. Every baby who is on oxygen has the concentration of oxygen in the incubator measured three times daily. It is not allowed to go above 30-40 percent. Oxygen is no longer given routinely even to the smallest premature. After the first 24 hour period a doctor's order is necessary for the use of oxygen except in an emergency. In case of emergency, standing orders recommend its use for a short time only.

I think the lesson to be learned from this is that we should periodically revise all our procedures, especially those that we regard as routine. We may be creating disease conditions by our treatment, however well-intentioned. An instance of this is suggested by reports from Bristol, and Birmingham of cases of Kernicterus in prematures who do not suffer from blood incompatibility. A sudden increase in the incidence of this condition at the Babies' Hospital in New York City, was shown on investigation by Dr. Silverman to be associated with the use of a sulfonamide preparation as a prophylactic agent in prematures. We have reviewed our statistics with the assistance of Dr. Chown, Dr. Hogg and Dr. Lederman and we do not find any cases in the first year of our Project Study at the Maternity Pavilion, April 1, 1954 to March 31, 1955. It seems altogether likely then that the increased incidence in some centres is due to some particular method of treatment which is not generally invoked.

With these experiences in mind we are at present reviewing the question of humidity and temperature-control in incubators. The methods we use at present are no doubt justified but some may be harmful to the prematures.

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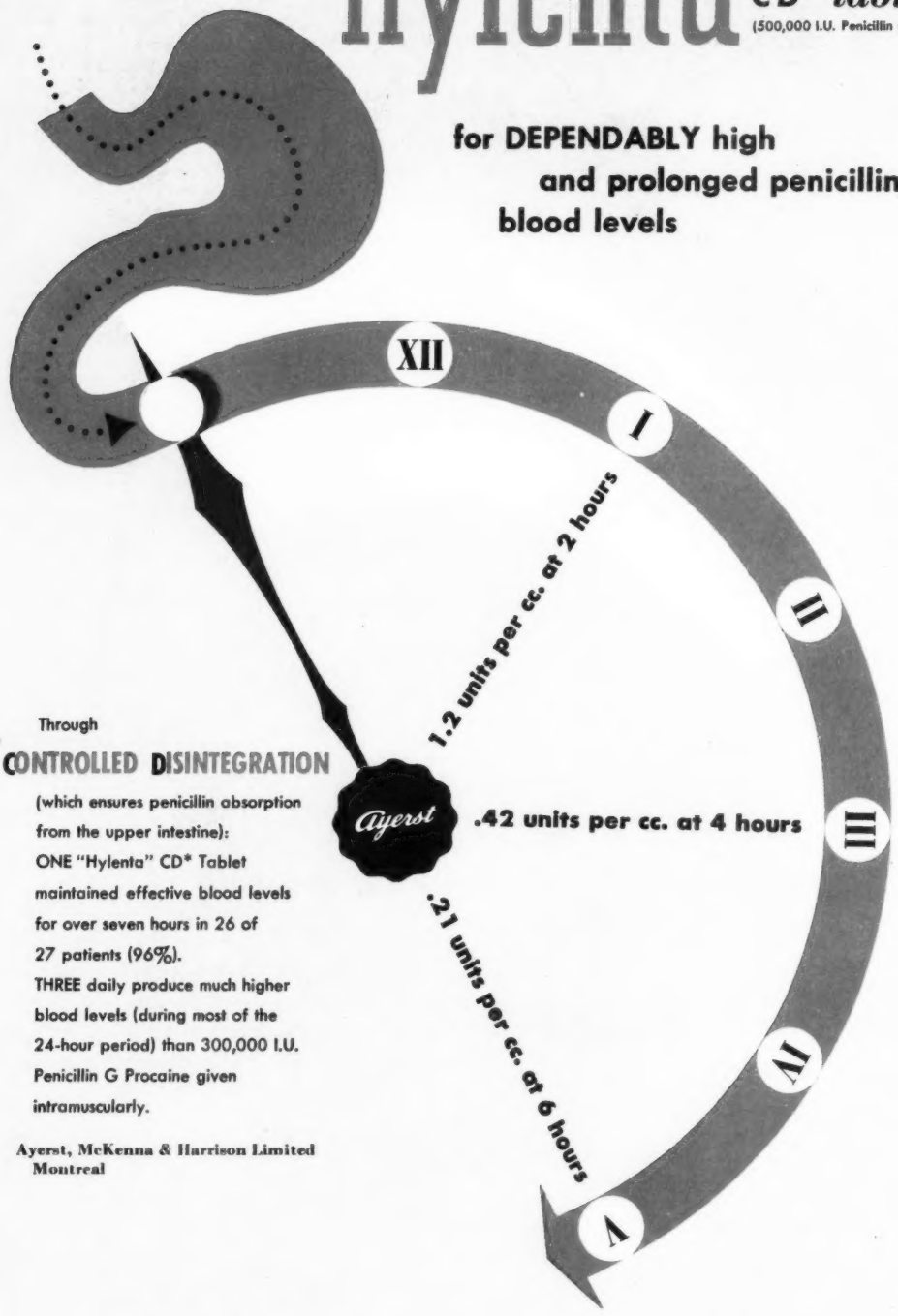

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Social Reflexes

S. Vaisrub, M.D., M.R.C.P. (Lond.) F.R.C.P. (C) F.A.C.P.

Simple reflexes are a "going concern." The unflagging interest of the neuro-physiologist, neurobiochemist, clinical neurologist, and, lately, the cyberneticist, as well as the vigorous, and enthusiastic hammering, stroking and pinching of the patient by the examining physician keeps them alive both in the medical and lay minds. The more complex conditioned reflex is also a "hot seller," although of more interest to the psychologist, psychiatrist, and epistemologist than to the doctor. One brand of conditioned reflex, however, has to date escaped publicity, namely the social reflex.

Social Reflex, a term as yet undignified by its incorporation into the medical lexicon, is a conditioned reflex which serves a useful purpose in the adjustment of the individual to society. Without it, social intercourse and society, as we know it, could not exist. The narrow line that separates us from the uncouth barbarian would be completely obliterated. Our "way of life" would lose its charm and appeal, and would no longer inspire speakers to oratorical raptures.

In view of the importance of this reflex to the individual as well as to society, it is difficult to understand why no neurologist ever deigned to make reference to it. It is even more surprising and less understandable that the sociologists have overlooked it. This oversight, amounting to grave negligence, if not to a sin of omission, left a wide gap in our knowledge. In order to breach this gap, and possibly encourage some young investigators to make a thorough study of this neglected branch of Socio-Neurology, the author has outlined a brief sketch of some of the commoner varieties of social reflexes.

(a) Finger-Lip Reflex

This reflex serves the purpose of sneeze prevention. It is obviously an inhibiting reflex. An attempt is made to prevent a sneeze by placing the index finger of the right hand (the left hand in sinistrals) over the upper lip, which is, as we know, conveniently located under the nose, the finger thus being prevented from slipping inadvertently up the orbit. A mustache presents no serious obstacle. Difficulty arises when the subject is caught by surprise. Not prepared for the speed of the process the finger may arrive at its destination much too late to prevent the explosion. The sluggishness of the response may of course be due to organic diseases such as: myxedema, myasthenia gravis, motor-neurone disease, etc., but usually it is the result of the inherent imperfection of a poorly conditioned reflex. This imperfection may at times be a blessing in disguise, for its perfect execution on some occasions such as pouring tea or holding a valuable vase would be more than embarrassing.

(b) Hand-Handkerchief-Nose Reflex

The above response is closely allied to the finger-lip reflex. Unlike the latter, however, it aims not at the prevention of the sneeze but at its containment. It is an attempt to make the best of a bad situation. The handkerchief serves as a muffler, not unlike the silencer on a gun, thus, softening the blow to the neighbour's ear drums while sparing him the benefits of undesirable irrigation. This reflex is somewhat complicated, requiring as it does the presence of an extrinsic object — a handkerchief and comprising several highly co-ordinated movements. Speed is of the essence, since a delay in any of the required steps spells disaster. All of us have painful memories of humiliating moments when we were faced with reproachful looks from our neighbours to whose soup we have so generously contributed. Should we happen to have a cold at the time and our neighbour be old-fashioned enough to believe in droplet infection we may be severely reprimanded and even threatened with punitive action — a matter certainly not to be sneezed at. It behooves, thus, everyone to be well-prepared to meet the emergency as it arises.

(c) Frozen Smile Reflex

This is a somewhat more complicated reflex than the ones previously referred to, for it involves emotional as well as physiological re-adjustments. Its working can be best illustrated by an example. Imagine yourself to be an active member on the active staff of an active hospital in an active city. It is a beautiful morning. Your patients are getting better. Your oil stocks are going up. You hum a gay tune as you stride happily along the corridors of the hospital. In the distance you behold a pleasant-looking man approaching with a smile on his face. You feel benevolently disposed and your face reflexly responds with a smile. Suddenly you realize that the man is only a member of the Associate Staff. Instantly reflex inhibition is set into motion. But, alas, it may be too late. You may find it difficult to change your muscular contractions in midsmile (it is like changing streams in midhorse). As a result your face freezes into an expression which is a cross between risus sardonicus and rigor mortis.

(d) "Thawing-out" Reflexes

The very opposite to the frozen smile occurs when a very blank stare, an averted eye, or even a frown specially reserved for unimportant people,

refuses to change reflexly at a moment's notice into a cordial smile when you suddenly realize that the man happens to be a v.i.p., whose approval may mean a raise or promotion—another case of a poorly executed conditioned reflex.

(e) Back Slapping Reflex

A reflex to be condemned is the back-slapping reflex. A man's back often appears to be a legitimate target for another man's palm. Although occasionally conducive to friendliness and camaraderie, it often leads to painful consequences. Dislocated vertebrae, prolapsed intervertebral disc and traumatic pneumothorax have been known to result from this seemingly innocuous act. Offenders can often be recognized by the cordial smile and the hearty greeting that precedes the back slap. In order to break the reflex arc at its efferent end the victim may on occasions intercept the outstretched arm and convert the slap into a handshake.

(f) Shoulder - Hand Reflex

Totally unlike the back-slapping response to the back and the well-padded shoulder of an adjacent male, is the shoulder-hand reflex (not to be confused with the shoulder-hand syndrome) provoked by the exposed back and bare shoulders of a neighbouring female. In the congenial atmosphere of a formal ball the proximity of the bare female shoulder to the male hand elicits a reflex touch, pinch, or gentle pressure, according to the circumstances or the temperament of the subject. The counter response is often a smile. Occasionally, however, it may be the palm-cheek response, which may be as painful as it is resoundingly embarrassing. In view of the latter possibility men have developed some inhibitory reflexes, which often result in the awkward arrest of the hand in mid-air.

(g) Pinch Thigh Reflex

The Pinch Thigh reflex, a vulgar variant of the "hand shoulder" is mentioned here only to be condemned.

(h) The Night Club Nystagmus

This reflex, perhaps more than the others illustrates the play of conflicting emotions. It can be best observed in a night club, but may also be seen in ordinary restaurants, cafeterias, or tea rooms. The classical situation would be as follows. You are sitting at a table vis-a-vis your wife or fiancee, as the case may be. You are politely supressing a yawn. Suddenly you notice a beautiful red-head seated at the neighbouring table on your right. You perk up. Your eyes move slowly to the right (the slow component). Immediately there comes the realization of dire consequences and inhibition is set into motion. Your eyes return quickly (the quick component) to the point of fixation. This nystagmoid movement may go on for considerable time, provided the inhibition is well-timed and your partner not too observant. It is, however, inadvisable to become overconfident, as a bitterly embarrassing scene may result if your manoeuver is detected. Indeed . . . .

Editor's note:

It is a pity that the writer did not heed his own advice, and became overconfident while writing these lines, for at this point his wife peered over his shoulders and, having taken an uncharitable view of what she read, brought this valuable scientific paper to an abrupt termination.

Editorial

S. Vaisrub, M.D., M.R.C.P. (Lond.), F.R.C.P. (C.), F.A.C.P., Editor

Water and Electrolyte Balance

It is, admittedly, not too easy to preserve one's mental balance when faced with a difficult problem of imbalance of water and electrolytes. The complexities of the biochemical and biophysical processes involved in the deranged homeostasis do not make for simplicity in the mathematics of its correction. Nor is the urgency of the situation with the life of the patient hanging in the balance, necessitating, as it does, rapid decision and readjustments, conducive to the certainty and precision of therapeutic action. It is no wonder that the latter often becomes an exercise in perplexity.

The perplexed in search of guidance will do well to read the articles on the "practical aspects of water and electrolyte therapy" published in this issue of The Review. These papers, which many of our readers have had the pleasure of hearing a few months ago at the Symposium sponsored by the Faculty of Medicine together with the Baxter Laboratories, illuminate various facets of the difficult problems posed by disturbances of water and electrolyte balance. The reader will find them enlightening.

One may wonder why the sponsors of the Symposium chose to qualify the term "therapy" with the adjective "practical," for is not all therapy practical? Several explanations come to one's mind. First, there is the matter of "theoretical considerations." It is quite easy to get involved in theoretical discussion to the neglect of that of practical management. Then, there is the all too common tendency to compartmentalize the subject. Separate chapters are devoted to osmotic regulations, acid base balance, blood and plasma volume, extracellular and intracellular phases, mineral metabolism, etc., without any attempt at integration. Lastly, there is the fashion of overemphasizing the "pure" depletions—"pure" water loss, "pure" sodium depletion, chloride loss, etc., without regard for the fact that derangements encountered in practice are mixed and "impure." By concentrating on specific problems and actual case reports the participants in the Symposium have succeeded in avoiding the above pitfalls. Their papers are eminently "practical."

It is difficult at this juncture to resist the temptation of digressing from the practical problems of electrolytes to some of their philosophical implications. It is difficult, because electrolytes dwell on the philosophical fringes of medicine, in the borderland between "hard" facts and "soft" concepts. Indeed, the very concept of "balance," along with those of "equilibrium," "dynamic steady state," "homeostasis," "milieu interieur" lends itself to lengthy philosophical analysis, while its mechanistic and teleological aspects are an open invitation to endless discussion. More than anything else the concept of electrolyte balance illustrates the idea of "transactions," the growing significance of which is, in the words of Russell Brain (Lancet 254, 959, 1953), "The characteristic feature of our present epoch in medicine." To continue with the quotation: "Many of the most important things that happen in the body can no longer be explained simply as the result of interaction of two or more organs, but require the conception of a dynamic transaction which itself integrates the activities of the organs. The electrolyte balance is equally vital to the life of the organism, and to the activity of all the tissues. The behaviour of the electrolytes in the body is the result of a complicated set of transactions involving the intake of fluid and salts, exchanges between blood and tissues, the secretions of the suprarenal cortex, the excretory function of the kidneys and many other factors. In these processes the constituents are themselves affected by what goes on. We are dealing, therefore, not with the interaction of unchanging objects like billiard balls, but with events which can only be expressed in transactional terms. In other words, though physiology and pathology have to take account of what is happening in individual organs, the transaction as a whole is the more important and unifying factor."

Transaction, thus defined by Russell Brain, is a fundamental principle in human physiology. Indeed, it is a fundamental principle of all Life. "The transactional approach"—to quote from the same source—"seems essential if we are to interpret the interplay of genetic endowment with the environment of the individual and his initiative in dealing with both." It would appear that this all important principle, so well illustrated by electrolyte balance, offers a key to the understanding of the mysterious harmonies of nature.

It would be presumptuous, however, to claim that at our present state of knowledge we are anywhere near the comprehension of these mysterious harmonies. It would be naive to expect to find in the vast literature on electrolytes a fundamental solution to the challenging mystery of their balance. What we can expect, and often find, as in this symposium, is a partial resolution of the mystification which originates in loose thinking and leads to confusion with regard to the correction of their imbalance.

Hence, again, the emphasis on the "practical" in the balancing of the the electrolyte budget.

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Letters to The Editor

Dear Editor:

A clinical observation, unique in that, as far as known it has been performed only six times by a single doctor is that of a record of weight during the process of what we call "dying."

In 1906, Dr. Duncan MacDougall, a staff physician of the Massachusetts General Hospital obtained permission from a number of patients (mainly dying of tuberculosis) to place them when in extremis on a bed which was constructed on the platform end of a large but accurate beam scale. Its acuracy was such that it measured up to one-tenth of an ounce.

These patients were chosen because it was desired to avoid convulsive movements near and at their demise. When the scale was in balance it was found the weight of expired air was too slight to affect the balance. Any discharge from the body was necessarily retained in the bed. The usual rate loss from moisture in breath and perspiration was about one ounce an hour and was compensated for. To quote Dr. MacDougall; (Journal of the American Society of Psychic Research, May, 1907):

". . . subject was a man dying of tuberculosis. Patient was under observation for three hours and forty minutes before death — during this time I kept the beam end (of the scales) slightly above balance near the top limiting bar in order to make the test more decisive if it should come."

"At the end of three hours and forty minutes he expired, and suddenly, coincident with death, the beam end dropped with an **audible stroke**, hitting against the lower limiting bar and remaining there with no rebound. The loss was ascertained to be three-quarters of an ounce."

Six patients were experimented with in this fashion; four showed conclusive results coincident with that one described. In the other two, relatives interfered with the one, and in the other the patient expired so quickly that it was decided not to accept the findings because the observations were not too perfect.

Today, with modern electrical weighing devices, which could be made in such a fashion as to be very unobtrusive, would a department of experimental medicine dare to repeat this experiment and if found to agree in its conclusions with Dr. MacDougall's findings give a satisfactory explanation?

Yours very truly,

Glen Hamilton, M.D.

Dear Sir:

Conceived out of controversy, the Special Commission of the Manitoba Medical Association has recently delivered its report. It is a remarkable document.

Whether or not one agrees with all of its points there is no doubt that it provides a broad avenue for agreement on most of the contentious issues that have plagued members of the profession for years. It does more. It throws light on many dark corners and exposes problems with which we must contend in the future.

No one reading this report can fail to be impressed with the immense amount of real research, quiet thought and calm deliberation with which the members of the Commission addressed themselves to these issues. The amount of work involved must have taken them many hours from their limited hours at home.

I believe, Mr. Editor, that it would be fitting for the membership of the Manitoba Medical Association (through its Executive) to express in some way the gratitude of the profession to Doctor L'Heureux and the members of his Commission.

Sincerely yours,

Alan A. Klass, F.R.C.S.

Obituary

Dr. Iain MacDonald Beaton

Dr. Iain MacDonald Beaton, 41, died on April 18, 1956. Born at Moosomin, Sask., he saw military service from January to December 1942. He graduated M.D. in 1952 from the University of Manitoba and did general practice in Virden, Dominion City and Winnipeg. His widow survives him.

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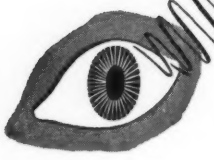

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1. The Effective Use of Rutin. Donegan and Thomas, Am. J. Ophthal., 31:671, 1948.

6-6

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Social News

Reported by K. Borthwick-Leslie, M.D.

The Review again hexes my holidays—Instead of being out digging bulbs, planting bulbs, burning rubbish and catching more cold on top of my present "near pneumonitis," here I am digging gossip — Oh well, Gordon, my public and my conscience must be placated . . .

First of all, apologies off the chest. In July, ye editor drew my attention to the fact that in June at the meeting in Chicago, Dr. L. R. Coke was elected Governor to the College of Chest Physicians. The item was tucked into my private file (under the blotter) and promptly forgotten—Sorry. Also Dr. E. D. Hudson, Hamiota. Your note to Dr. Macfarland was handed on to me and not forgotten but procrastinated . . . explanation in the mail. sir.

Speaking of the Hudsons, congratulations to Dr. J. E. Hudson, the new president of the Manitoba Medical Association, succeeding Dr. Ruvin Lyons. First Vice-President is Dr. C. B. Schoemperlen.

♦

Dr. Donald J. Hastings was elected president of the General Practitioners' of Manitoba at the annual meeting and has the able support of a new slate of officers. More power to them.

♦

In Toronto, the Royal College of Physicians and Surgeons at Convocation ceremonies, accepts as members, thirteen of our own — Internists to be congratulated are: Drs. R. Cherniak, William Karlinsky, J. Lederman, J. D. McDowell, G. C. Sisler and A. B. Judd. Surgeons to be congratulated are: Drs. Morley Cohen, W. A. Maclean, J. C. McCawley, J. R. Mitchell, E. K. Vann, R. L. Williams and J. M. Kagan.

♦

Dr. Gerald H. Holman, U of M '53 has been awarded a fellowship by the trustees of the Gordon Bell Memorial Fund. He will continue his studies in paediatric endocrinology at the Johns Hopkins where he has been doing paediatrics since 1954.

♦

Dr. and Mrs. Jack Mendelson and family have returned to Winnipeg and are in residence at 711 Borebank. Dr. Mendelson has for three years, been doing post graduate study at Bellevue Hospital in New York.

♦

Everyone knows about the well deserved honor bestowed on our beloved Tom Casey and his typical reaction of "lateral pass" to establish a scholarship fund for students, but I wonder do you appreciate what a bang the Varsity Sportsmen are getting out of Tom's playing with the Medical Six Man Varsity team? I listen in on a lot of post game jam sessions and got the biggest kick out of one of the lad's comment: "Did Tom have fun in that game. Remember when he tucked the ball under his arm and danced through the whole six players? He was laughing so hard, you couldn't see his face, only his good natured laugh."

♦

Also overheard: Two dates with a 1st year Med. and she's starting to wonder what it's like to be a doctor's wife .. . women ! !

♦

Dr. and Mrs. Charles T. Boyd, Gladstone, Man. announce the engagement of their daughter Joan Margaret to Matthew Barry, Jr., elder son of Mr. and Mrs. Matthew Barry, Kirkedwan, Scotland.

♦

Stork Dept.

Dr. and Mrs. J. G. Bonar, Deloraine, Man. are happy to announce the arrival of Daniel Gordon, Sept. 23, in Deloraine. Thanks for the note, Gord.

♦

Dr. and Mrs. L. J. Stephen announce the birth of Heather Dawn, Sept. 27, 1956 in Dauphin.

♦

Dr. and Mrs. J. B. Frain welcome the arrival of Charles Bruce, Sept. 22, 1956.

♦

Dr. and Mrs. J. B. R. Cosgrove (nee Allison Chown) also announce the birth of their son, Sept. 22, 1956 at the Royal Victoria Hospital, Montreal.

♦

Dr. and Mrs. J. E. Bennett welcome a son, Peter James on October 8, 1956.

♦

Dr. and Mrs. Donald R. Magee announce the birth of Barbara Lynn on October 10, 1956.

♦

Dr. and Mrs. Alfred Mutchnik are very happy to welcome Elaine Gail as of October 5, 1956.

♦

Dr. and Mrs. J. L. Asseltine announce the birth of Maralee on October 5, 1956.

♦

Dr. and Mrs. Garth Diehl are happy to welcome their daughter, Garcia Ann, who arrived Sept. 24, 1956.

♦

Dr. and Mrs. Geo. Johnson (nee Doris Blondal), Gimli, Man., announce the birth of Jo Ann Margaret— 10 lbs. 8½ oz. Wow! ! ! Must be that fresh air at Gimli, George.

♦

This probably is not the place for obituaries, but I think the rest of the Review is on the press:

From Victoria, B.C. we learn that funeral services were held Friday, October 26th, for our old friend Dr. George W. Fletcher, who died of a heart attack, at the age of 79. Dr. Fletcher, former Dean of Laryngology at Manitoba Medical College, was a Toronto graduate, taking post graduate studies in London, Chicago, New York and Vienna. He practiced in Winnipeg from 1908 until 1942, when he moved to Victoria, B.C., where he continued practice until his retirement in 1952.

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in corticosteroid therapy

METICORTEN*

(Prednisone)

PERMITS TREATMENT OF MORE PATIENTS

- simplified management
- up to 5 times more effective than cortisone or hydrocortisone, milligram for milligram
- minimizes sodium retention edema
- dietary regulation seldom necessary

in RHEUMATOID ARTHRITIS: better relief of pain, swelling, tenderness; diminishes joint stiffness

in INTRACTABLE ASTHMA: better relief of bronchospasm, dyspnea, cough; increases vital capacity

in COLLAGEN DISEASES AND ALLERGIES: hormone benefits with decreased electrolyte side effects

METICORTEN
is available as 5, 2.5 and 1 mg. tablets.

* T.M.

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1956
COMMITTEE REPORTS

Manitoba Medical Association
(Canadian Medical Association, Manitoba Division)

Executive

To the Members of the
Manitoba Medical Association:

1.

On the occasion of this Annual meeting, the Association is privileged to welcome members and guests, including Drs. J. Renaud Lemieux, Quebec, and Arthur Peart, Toronto, President and Assistant Secretary of the Canadian Medical Association. Members of the C.M.A. speakers team include Drs. Jacques Genest and J. C. Luke of Montreal. Dr. G. A. Hallenbeck of Rochester, Minn., and Maurice Victor of Boston, Mass., are guest speakers from U.S.A., but the latter is a graduate of the Medical Faculty, University of Manitoba, and a son of the late Dr. B. A. Victor, of Winnipeg. Hon. R. W. Bend, Minister of Health and Public Welfare for the Province of Manitoba is to be a luncheon speaker. To all who may contribute to the program, we extend our sincere appreciation.

2.

During the year 1955-56, the Officers have met on numerous occasions, and the Executive Committee has held nine meetings with an average attendance of twenty members and four invited guests. Some dinner meetings were held in the Medical Arts Clubrooms, but the majority of gatherings were in the Board Room of the Manitoba Medical Service. The courtesy of the Board of Trustees in making the latter accommodation available is gratefully acknowledged.

Special Commission re Manitoba Medical Service

3.

At the last Annual, one resolution, passed by the smaller group in attendance at the afternoon session recommended that the incoming Executive consider holding future business sessions of the Association on *two consecutive evenings.* A second resolution passed at the end of the lengthy evening session, suggested that the Executive set aside a special additional day for discussion of all matters pertaining to M.M.S., and that four weeks prior to such meeting all medical members of M.M.S. be advised in writing of all matters to be discussed, as well as the report of the M.M.S.

These two resolutions were considered by the Executive Committee at the first meeting in November, when it was decided that the business of Manitoba Medical Service should be discussed at the Wednesday afternoon session, and the remainder of the business carried out in the evening.

A special Commission, with Dr. P. L'Heureux as Chairman, and with Drs. J. P. Gemmell, G. F. Hamilton, A. T. Gowron, D. J. Hastings, M. K. Kiernan, and L. Rabson, as members, was set up to carry out the terms of reference of another resolution passed by the Annual Meeting. A progress report from the Commission Chairman was presented to the Executive Committee on April 18th, and indicated that the task of the Commission would not be completed in time to call a general meeting of the Association before the summer vacation. In addition to thirty formal meetings involving well over one hundred hours, and approximately two hundred hours spent privately by each member of the Commission, much secretarial work was involved before the final copy was handed to the Executive Secretary, and by him to the printers. The matter of a special fall meeting of the Association was seriously considered by the officers on several occasions, but it was finally decided that a copy of the Report should be sent to each member of the Association as outlined in the Terms of Reference for the Commission, and that a special evening session of the Association should be held on Monday evening, October 15th, at which time the Commission chairman, and members should sit as a panel to inform the Association of the content of the report, and answer questions, but it was also agreed that formal discussion of the recommendations should be dealt with at the business session on Wednesday, October 17th. Here, then, is the Chairman, Dr. Paul L'Heureux, who will introduce the members of his panel, each of whom deserves a hearty vote of thanks from the association.

Canadian Medical Association

4.

The eighty-ninth Annual meeting of the federal association met in historic Quebec City, June 11-15 inclusive. The headquarters hotel was Chateau Frontenac, and the plans were under the personal direction of the President-Elect, Dr. J. Renaud Lemieux and his charming wife. The Executive Committee met on Friday and Saturday, June 8th and 9th, preceded by meetings of Trans-Canada Medical Plans. Religious services were held on Sunday, June 10th, followed by a reception at St. Sacrament Hospital, of which the President-Elect is Medical Director. General Council was held on June 11th and 12th, and Manitoba was represented by eight members, in addition to the President and Executive Secretary, namely, Doctors J. E. Hudson, (Hamiota), K. I. Johnson, (Pine Falls), J. C. MacMaster, R. W. Richardson, C. B. Schoemperlen, F. H. Smith, W. F. Tisdale, K. R. Trueman. Dr. A. R. Birt represented the Canadian Dermatological Association and Dr. C. H. A. Walton the Canadian Academy of Allergy. C.M.A. Past-Presidents are continuing members, and include Drs. C. W. Burns, G. S. Fahrni, (Vancouver), F. G. McGuinness.

A detailed report of the Transactions of General Council is reproduced in the September first issue of the Canadian Medical Association Journal, (pages 335 to 370). It is commended to the attention of members since many matters of concern to the profession were discussed at considerable length.

His Excellency, the Governor-General of Canada held a reception at the Citadel on Monday, June 11th, and the following evening when the Quebec Division was host to General Council, Honorary Membership was conferred on His Excellency, The Right Honourable Vincent Massey, C.H. On that occasion the Quebec Division presented a flag to be placed in C.M.A. House, Toronto.

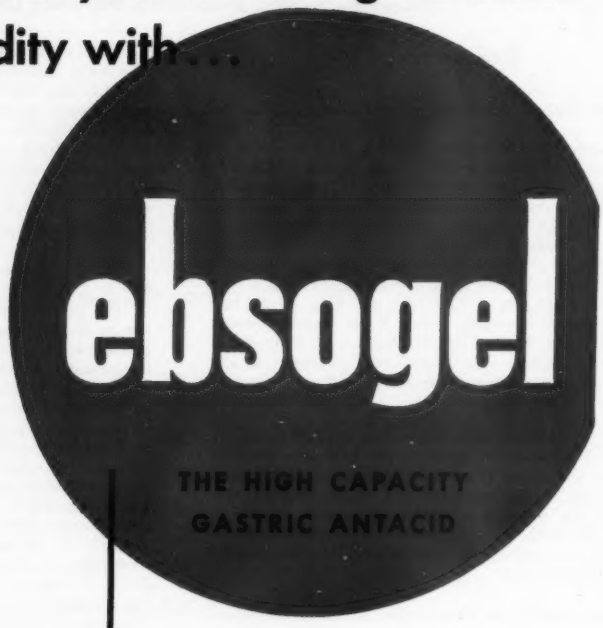
The Annual General meeting was held on Wednesday, June 13th, when Doctor Lemieux was installed as President, following which a reception and dance were held. Senior membership was awarded to Divisional Representatives, including W. A. Bigelow, Brandon. On Thursday, June 14th, a special, colorful event was held in the Salle des Promotions, Laval University, when honourary degrees were conferred on four past-presidents of C.M.A.

Advisory Commission Under The Health Services Act

5.

The three representatives named by this Association are Drs. C. W. Wiebe, Winkler, completes a six-year term in 1956, D. L. Scott, Winnipeg, completes a six-year term in 1957, and Ruvin Lyons, Winnipeg, completes a three-year term in 1958. Letters of appreciation for services rendered by Drs. W. F. Tisdale and C. W. Wiebe have been received from the Minister of Health and Public Welfare.

It's easier for you to manage Gastric Hyperacidity with...



FORMULA:

Each lozenge contains:

Calcium Carbonate....250 mg.
Magnesium Carbonate....250 mg.
Aluminum Hydrox. Dried Gel....100 mg.

DOSAGE:

One or two lozenges after meals. Allow to dissolve in mouth or chew.

EBSOGEL:

- Provides prompt, prolonged and *reliable* relief.
  - —Neutralizes twice as much hydrochloric acid as popular antacid adsorbents.
  - —Yet pH never leaves physiologic range.
- Tastes like an after-dinner mint.
- May be chewed, but otherwise will dissolve slowly in the mouth to provide principle and effect of intragastric drip.

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PHARMACEUTICALS
TORONTO CANADA

Alcoholism Foundation of Manitoba

6.

As a result of liberalization of the Government Liquor Control Bill, 1956, provision was made for increased educational grants under the Provincial Department of Education, and Manitoba Temperence Association, and for a Committee on Alcohol Education. The Manitoba Liquor Enquiry Commission, under the chairmanship of Hon. John Bracken, and with Dr. Paul L'Heureux as one of the commission members, had recommended that a foundation be established to carry out the function for which the Manitoba Commission on Alcoholism had previously been responsible. Accordingly, Bill 99 was assented to on April 23rd, and was placed under the Minister of Health and Public Welfare.

In addition to the one Board member from M.M.A. nominations, provision is also made for a Medical Advisory Committee of five duly qualified medical practitioners to advise the Board as to matters on which it seeks the advice of the Committee, or on which it is requested by the minister to advise the Board.

Your representative was selected by the minister from the three nominees for a period of two years, and attended the first official meeting of the Board on Friday, June 1st, at which time bylaws relative to the Foundation, office facilities, staff, etc., were discussed.

Clinic facilities are under consideration at the present time, and notice for dissolution of the Manitoba Committee on Alcoholism has recently been published.

Cancer Relief and Research Institute

7.

The three representatives constitute the Cancer Committee. The senior member is Dr. R. O. Burrell, whose term ends in 1956. Dr. P. H. T. Thorlakson has served two years, and Dr. E. F. E. Black one year of a three-year appointment. Dr. M. R MacCharles is vice-chairman, Dr. Black is chairman of the Medical Committee, Dr. C. H. A. Walton is chairman of the Scientific Committee. Dr. R. J. Walton has been acting Executive Officer in addition to his duties as Medical Director and Mr. J. L. Stein is comptroller and Secretary to the Board.

Civil Defence

8.

A plan for medical arrangements in the event of disaster was prepared by Col. C. G. Wood and awaits approval and publication. The threat of a flood in the spring of 1956 called for emergency planning in which many members participated. A new committee on Civil Disaster has been established by the C.M.A., and it is anticipated that the C. D. committee will continue as the local counter-part of the Federal Committee.

District Medical Societies

9.

Through grants provided by the College of Physicians and Surgeons of Manitoba, the College of General Practice, Manitoba Chapter, and the Canadian Medical Association, it has been possible to enlarge the activities of the district societies through the Medical Education Committee. At least two groups have requested a revision of the boundaries of the societies and it is anticipated that such a study may be undertaken by the new executive.

Fee Committee

10.

Five meetings of the Committee were held. Matters referred to the committee by individuals, groups, sections, or Manitoba Medical Service, were dealt with, including recommendations for an increase in the fees paid by M.M.S., for Home, Office, and Repeat calls, and a proposed revision of the Department of Veterans Affairs Schedule of Fees. The Committee minutes were approved by the Executive Committee, and the results forwarded to the parties concerned. There is a continuing need for this or a similar committee since fee revision is one matter which does not remain static.

Legislation

11.

As in previous years a watching brief was maintained by the Executive Secretary during the Legislature sessions, and bills which might have implication for the profession were followed in the house and committee sittings. Matters were discussed with the Chairman of the Legislative Committee, and with the solicitor, and recommendation for a more effective coverage is contained in the report of the Legislative Committee.

Liaison Committee M.M.A. - C.P.&S.

12.

At the last annual meeting it was reported that additional office space, equipment and staff were required. The inadequacies in these respects have become more acute, and three meetings of the Committee were held. It was agreed that additional space be secured in the Medical Arts Building, if possible, thereby obviating the necessity of moving to new quarters, purchasing and remodelling some existing building, or undertaking the construction of a new building. The Executive Secretary was authorized to secure some modern equipment, and to employ sufficient members of staff to carry on the work of the Association in efficient manner.

Manitoba Hospital Service Association

13.

Dr. H. C. Hutchison is serving the third year of a three year appointment as representative of the Winnipeg Medical Society. Drs. M. T. Macfarland and Ruvin Lyons are serving the second and first of three year appointments as representatives of the Manitoba Medical Association, under the amended Bill of Incorporation of the Manitoba Hospital Service Association.

A copy of the annual report was mailed by M.H.S.A. to members of the profession, and condensed copies of the highlights of the year's activities are available for distribution at this meeting. A copy of comparative figures for the first six months of 1956 with the similar period of 1955, was mailed to members of the profession on August 16th. Due to increased patient stay in hospital, and the payment of increased rates to the hospitals, M.H.S.A. is budgetting for a deficit in the present year. Some adjustment of payment to hospitals may be required in keeping with the schedule established by the Rates Board, under the amended Hospital Aid Act. At the request of M.H.S.A. three committees of your association were re-named to consider Nervous and Mental conditions, Borderline Claims, and Procedures which should be included in the coverage.

The Brandon and District Medical Association requested that the committee named by that body be reconstituted, and invited Mr. P. H. Sprague, Public Relations Officer, to attend the District Meeting on February 22nd, 1956.

The matter of obtaining patient's permission before information is supplied by the doctor to M.H.S.A., and the payment of a fee for filling out the pre-enrolment or claims forms was referred to the Executive Committee. It was agreed that consent forms should be provided to the doctor when information is sought, but it was also agreed that since M.H.S.A. is a non-profit sister organization to Manitoba Medical Service, a recommendation should go to medical members that they waive fees for this purpose insofar as M.H.S.A. is concerned.

At the last meeting of the Executive Committee, it was agreed that the M.H.S.A. Public Relations Officer might be invited to attend meetings of District Medical Societies, or other interested groups to give members of the profession a better working knowledge of M.H.S.A.

Manitoba Medical Review

14.

Dr. S. Vaisrub was confirmed in his appointment as Editor of the Review, and Chairman of the Editorial Committee. The Business Manager, Mr. J. G. Whitley is rapidly approaching the twenty-fifth anniversary of his activity with the Association. Discussions have been held by the Executive Committee, with a view to increasing the amount of Medio-socio-political news provided for medical members.

NEW—a powerful ally to help you manage chronic constipation

CONSTIBAN

By its physical effect alone Constiban penetrates and softens the bowel content with water.

unlike a laxative

CONSTIBAN

- **produces no motor effect in jejunum or ileum.**
  (because it exerts no pharmacologic action)
- **produces no bulk.**
  (because daily intake is only 20-40 mg.)
- **exerts no known effect on digestion or absorption of foods.**
- **safe for long term use.**
  (because non-toxic in recommended dose)

DOSAGE FORM:

60 mg. rose-coloured coated tablets in 30's and 250's.
20 mg. white coated tablets in 60's and 500's.
1% solution in 30 cc. bottle with calibrated plastic dropper.

DOSAGE:

Adults and children over 12 years: 20 or 40 mg. daily. 60 mg. daily or more may be required in starting difficult cases but dose should be decreased as function improves.

Cathartic addicts may be "weaned" by slowly reducing cathartic dosage while taking 60 mg. of Constiban.

Infants and children under 2 years: 5 mg. (½ cc.) daily.

Children 2-6 years: 10 mg. (1 cc.) daily.

Children 6-12 years: 20 mg. daily.

A complimentary Constiban trial package, complete with directions, will be sent to you promptly upon request.

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Manitoba Medical Service

15.

As a result of the ballotting after the last annual meeting, Drs. C. W. Clark, D. J. Hastings and A. Hollenberg were named to the Board of Trustees, to replace Drs. C. E. Corrigan, A. M. Goodwin and M. R. MacCharles, who had completed a six year term, and were not immediately eligible for re-election. Board members since March 20th, 1956, are as follows:

Physicians: Drs. S. A. Boyd, C. W. Clark, D. J. Hastings, A. T. Gowron, T. E. Holland, A. Hollenberg, M. S. Hollenberg, Eyjolfur Johnson, A. A. Klass, Ruvin Lyons, P. H. McNulty, D. L. Scott, A. R. Tanner, P. H. T. Thorlakson, W. F. Tisdale, K. R. Trueman.

Public Representatives: Russell Barrett, Esq., H. D'Eschambault, Esq., R. Murray Fisher, Esq., Q.C., LL.D., F. H. Keefe, Esq., Morris Neaman, Esq., Gilbert Robinson, Esq., R. G. Small, Esq., J. R. Stuart, Esq.

Several meetings of M.M.A. Officers and M.M.S. Executive Committee have been held during the year, to discuss spheres of influence in which each body is interested. These have been carried out in a spirit of harmony which should result in improved relations. The report from the Chairman of the Board of Trustees, Dr. W. F. Tisdale, will precede discussion of the M.M.S. matters and the recommendation of the Commission report at the business session on Wednesday. Nominations will be presented for members to the Board of Trustees, M.M.S., to replace six members whose term expires in March, 1957.

"Medicine in Manitoba"

16.

Copies of Dr. R. B. Mitchell's book on the medical history of this province are still available at a modest price. The real significance of this painstaking effort will become more apparent in the years to come, but a copy should be in the hands of each member.

Membership

17.

The increase in membership outlined in previous years has again been surpassed. The close relationship between membership in this association and Manitoba Medical Service has been mutually beneficial.

Public Relations

18.

The report of the chairman of this committee will indicate greatly increased activity on the part of the parent body. Mr. L. W. Holmes visited Winnipeg, and met the committee. He has prepared a great deal of material for distribution to C.M.A. members. "You and the Canadian Medical Association," in both English and French is available to those who have not received copies. A Code of Co-operation with radio, press, and television has been approved by the Executive Committee.

Rehabilitation

19.

This Committee has been extremely active during the year, wrestling with such problems as the role of the municipal hospitals, enlargement of the scope of activities of the Society for Crippled Children and Adults, and the decision to have the Medical Advisory Committee for rehabilitation act as the Medical Committee for the latter organization. A more complete report will be given by the chairman.

Victorian Order of Nurses

20.

Dr. M. H. Campbell continued as representative to the National board, and no report has been received that the duties are unnecessarily exacting or time consuming.

Workmen's Compensation Board

21.

Selection of three members is made from a panel of a dozen members to sit as a fee assessment committee at the request of the Chief Medical officer. Three such meetings have been held during the year, and the association is reimbursed by the College of Physicians and Surgeons for the financial outlay involved.

22.

The reports which follow will indicate in more detail the many activities in which the association has been engaged during the past year. The courtesies extended to the President and Executive Secretary during their visits to District Societies has been greatly appreciated. The co-operation of the Committee and Commission chairmen and members, has been splendid, and their efforts merit the thanks of the whole membership. The office staff is commended for their efforts to make this annual meeting entirely successful.

Ruvin Lyons,
President.

J. C. Rennie,
Honorary Secretary.

Finance

23.

March 23, 1956.

The Manitoba Medical Association,
Winnipeg, Manitoba.

We have examined the balance sheet of Manitoba Medical Association as at December 31 1955 and the statement of revenue and expenditure for the year ended on that date, and have obtained all the information and explanations we have required. Our examination included a general review of the accounting procedures and such tests of accounting records and other supporting evidence as we considered necessary in the circumstances.

Our comments on these financial statements, which are attached, are as follows:

Results for the Year

Revenues exceeded expenditures for the year by $11,978.59; this compares with an excess of revenue in the preceding year amounting to $8,256.02.

Membership fees collected are in accordance with duplicate receipts on file and were reconciled with the record of membership cards issued. Particulars of membership numbers and rates of fees paid are as follows:

639	Members at	$40.00	$25,560.00
35	Members at	20.00	700.00
97	Members at	5.00	485.00
11	Members at	30.00	330.00
18	Members at	15.00	270.00
5	Members at	13.00	65.00
2	Members at	21.00	42.00
5	Members at	6.00	30.00
2	Members at	10.00	20.00
2	Members at	8.00	16.00
816			$27,518.00

All expenditures examined by us were seen to have been properly authorized.

Cash on hand and in bank — $6,909.39:

Cash on hand at the year end amounted to $20.00 and that sum was produced for our examiners on March 12, 1956. A certificate has been received from the bank in confirmation of the amounts on deposit at the year end, in current and savings accounts at the Bank of Montreal.

Accounts Receivable — $1,966.28:

Of this amount, all but $178.46 had been received at the date of this report and this balance is considered to be fully collectible.

Investments — $38,517.12:

During the year the association purchased, at a cost of $8,160.00, bonds of the Hydro Electric Power Commission of Ontario, 4% due 1967, having a par value of $8,000.00. We examined the securities held in the Association's safety deposit

PEN·VEE*·*Suspension*

Benzathine Penicillin V

TWO POTENCIES FOR FLEXIBLE DOSAGE

- ready-mixed—easy to administer
- delightfully palatable
- stable 12 months without refrigeration
- produces faster and higher blood levels than any other oral penicillin of comparable potency—higher than those of injected procaine penicillin G in twice the unitage
- unparalleled resistance to degradation in acid media, rapid and complete solubility in alkaline media
- minimal destruction in the stomach, maximal absorption from the duodenum
- well tolerated and virtually nontoxic
- taken without regard to meals

*Trade Mark

supplied:

90 mg. (150,000 I.U.) per 5 cc. teaspoonful

180 mg. (300,000 I.U.) per 5 cc. teaspoonful, bottles of 2 fl. oz.

Also available:

PEN · VEE* *Oral* Tablets (scored)

125 mg. (200,000 I.U.), bottles of 12 and 100

300 mg. (500,000 I.U.), bottles of 12 and 100

BICILLIN · VEE Tablets

Bottles of 12 and 100 scored tablets.

Wyeth

Registered Trade Mark

WALKERVILLE, ONTARIO

WINNIPEG MONTREAL

℞ *available on prescription only*

oral penicillin with injection performance

box at the Bank of Montreal and found them to be registered in the name of the Association, with the exception of the aforementioned Hydro Power Commission of Ontario bonds, which were in bearer form. All bond interest has been accounted for on a received basis in the accounts of the Association.

In our opinion the accompanying balance sheet and statement of revenue and expenditures are properly drawn up so as to exhibit a true and correct view of the state of the affairs of the Manitoba Medical Association as at December 31, 1955 and the results of its operation for the year ended on that date, according to the best of our information and the explanations given to us and as shown by the books of the Association. All the transactions of the Association that have come within our notice have been within the objects and powers of the Association to the best of our information and belief.

PRICE WATERHOUSE & Co.,
Chartered Accountants.

Exhibit I

24.

Balance Sheet, December 31, 1955

ASSETS

Cash on Hand and in Bank			$ 6,909.39
Accounts Receivable:			
Review Advertisers		$ 1,532.21	
College of Physicians and Surgeons		174.97	
Advance—J. G. Whitley		259.10	
			1,966.28
Investment in Bonds:	Par	Cost	
Government of Canada	$ 5,000.00	$ 5,150.00	
Province of Manitoba	14,000.00	14,234.62	
Province of New Brunswick	7,000.00	6,970.00	
Hydro Electric Power Commission of Ontario	10,000.00	10,157.50	
British Columbia Electric Co. Ltd.	2,000.00	2,005.00	
			38,517.12
(Quoted market value $38,008.38)	$38,000.00		
			$47,392.79

LIABILITIES AND SURPLUS

Liabilities:		
Accounts Payable	$ 31.67	
Canadian Medical Association—Unremitted Fees	24.00	
Fees Paid in Advance	246.00	
		$ 301.67
Surplus Account:		
Balance December 31, 1954	$35,112.53	
Add—Net revenue for the year	11,978.59	
		47,091.12
		$47,392.79

Exhibit II

25.

Statement of Revenue and Expenditure
For the year ended December 31, 1955

REVENUE

Fees Collected:		
Current year (816 members)	$27,518.00	
Arrears 1954	30.00	
Rebate from C.M.A. re 2 members deceased	40.00	
Divisional members (2)	4.00	
		$27,592.00
Canadian Medical Association—Grant for post graduate education		1,284.00
Interest on bonds and bank balances		1,123.52
		$29,999.52

EXPENDITURE

Salaries of Executive Secretary and Office Personnel	$10,010.00	
Expense Allowance to Executive Secretary	1,200.00	
Honorarium to Editor of Review	1,500.00	
Annual Meeting (C.M.A. $114.59; M.M.A. $29.21)	143.80	
Audit fees	175.00	
Business taxes	165.31	
Entertainment	107.40	
Executive and committee luncheon meetings	203.70	
General expenses	295.58	
Illustrations—Review	302.18	
Legal fees	100.00	
Printing, postage and stationery	941.95	
Medicine in Manitoba	1,009.85	
Rent and light	1,922.97	
Telephone and telegraph	382.05	
Travelling (including reimbursement to rural committee members)	1,792.50	
Unemployment insurance	48.64	
	$20,300.93	
Less—Share of office expense borne by:		
Winnipeg Medical Society	$1,320.00	
College of Physicians and Surgeons	960.00	
	2,280.00	
		18,020.93
Net revenue for the year		$11,978.59

Balance Sheet at at August 31, 1956

26.

ASSETS

Cash:		
Petty Cash on Hand	$ 20.00	
Bank of of Montreal—Current	8,019.35	
Bank of Montreal—Savings	8,731.20	
		$16,770.55
Accounts Receivable:		
Review Advertisers	$ 2,262.30	
College of Physicians and Surgeons—Extra Mural	486.37	
Fee Taxing Committee	90.00	
		2,838.67
Investments		48,636.57
		$68,245.79

LIABILITIES

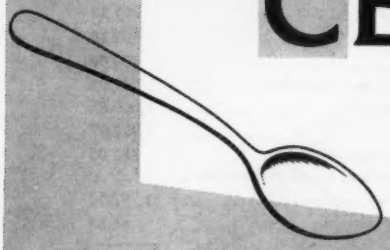
Accounts Payable:		
Canadian Medical Association—Unremitted fees	$ 140.00	
Mr. J. G. Whitley—Re: Review—(does not include printing costs of $1,049.65)	1,044.92	
		$ 1,184.92
Deferred Income:		
Annual Meeting—Exhibitors' deposits		3,075.00
Surplus:		
Balance as at December 31, 1955	47,091.12	
Add—		
Excess of Revenue over Expenditure	16,894.75	
		63,985.87
		$68,245.79

Made available for the first time in Canada by CALMIC LTD.

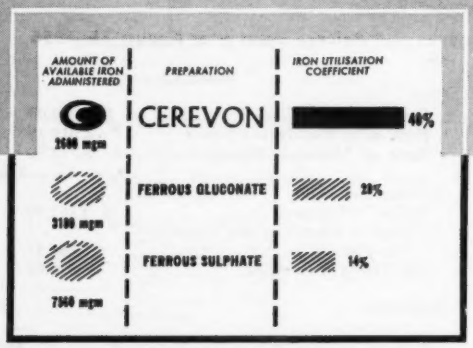
CEREVON

(Ferrous Succinate)

ELIXIR
and
TABLETS



Advances in treatment have covered a wide field.
In Ferrous Succinate, Cerevon, we present a new iron salt as a contribution to therapeutic advancement.
The low molecular weight of this new Ferrous Salt means that by prescribing a relatively low dosage sufficient bivalent iron is made available to produce a mean daily haemoglobin increase of 1.2 per cent approximately.
This figure was obtained in a trial consisting of 150 cases of hypochromic anaemia of various origin (Gillhespy 1955).
Subsequently this figure was confirmed by the findings of O'Sullivan, Higgins and Wilkinson, 1955. In a survey of four oral iron compounds the absence of gastro-intestinal upset, even in iron sensitive patients is a noticeable feature of this new Ferrous Salt.



The results obtained from many clinical assessments show that the utilization co-efficient of Cerevon shows an increase of 43% over the figure obtained using Ferrous Gluconate.

THE LATEST AND MOST SIGNIFICANT ADVANCE TOWARDS IDEAL ORAL IRON THERAPY.

O'Sullivan, Higgins & Wilkinson—The Lancet 2, 482.
Gillhespy, R.O. (1955) Med. Illustrated, 9, 147.

CEREVON — is supplied in four forms;

CEREVON TABLETS—Each tablet contains:
Ferrous Succinate 150 mgm.

CEREVON ELIXIR—Each teaspoonful contains:
Ferrous Succinate 150 mgm.

CEREVON "B" TABLETS—Each tablet contains:
Ferrous Succinate 150 mgm.
Aneurine Hydrochloride 1 mgm.
Riboflavin 1 mgm. Nicotinamide 10 mgm.

CEREVON "B" ELIXIR—Each teaspoonful contains:
Ferrous Succinate 150 mgm.
Aneurine Hydrochloride 1 mgm.
Riboflavin 1 mgm. Nicotinamide 10 mgm.

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Statement of Revenue and Expenditure for the Period 1st January, 1956 to 31st August, 1956

27.

REVENUE

Fees Collected:	1956			Comparison, 1955			Comparison 1954		
	636 members	@	$40.00 $25,440.00	628	@	$40.00 $25,120.00	578	@	$40.00 23,120.00
½ year @ $40.00	13 members	@	20.00 260.00	13	@	20.00 260.00	8	@	20.00 160.00
½ year @ $20.00	2 members	@	10.00 20.00	1	@	10.00 10.00	95	@	5.00 475.00
Salaried @ $5.00	94 members	@	5.00 470.00	95	@	5.00 475.00	23	@	5.00 115.00
1955 Grads.	23 members	@	15.00 345.00	1	@	15.00 15.00	24	@	15.00 360.00
1956 Grads.	10 members	@	20.00 200.00	16	@	15.00 240.00	13	@	20.00 260.00
Salaried Combined Fee	2 members	@	8.00 16.00	13	@	20.00 260.00	3	@	8.00 24.00
Combined H. & W.	12 members	@	30.00 360.00	2	@	8.00 16.00	7	@	43.00 301.00
Retired	4 members	@	21.00 84.00	11	@	30.00 330.00	6	@	21.00 126.00
	4 members	@	6.00 24.00	1	@	10.00 10.00	5	@	20.00 100.00
Post-Graduate	12 members	@	20.00 240.00	2	@	21.00 42.00	2	@	25.00 50.00
Non-Resident	3 members	@	13.00 39.00	5	@	6.00 30.00	8	@	15.00 120.00
				6	@	20.00 120.00			
	815		$27,498.00	5	@	13.00 65.00			
Plus Arrears, 1955			30.00						
Plus one on account			30.00						
Plus two divisionel members			4.00						
			$27,562.00			$26,993.00			$25,211.00
C.M.A. Grant Re: Post-Graduate work			1,320.00	Plus arrears		30.00	Plus arrears		40.00
College of Physicians and Surgeons			640.00	Plus 1 on acct.		30.00	Plus 1 on acct.		10.00
General Practitioners' Association			73.73	C.M.A. refund		40.00			
Winnipeg Medical Society			880.00	Plus 2 div. members		4.00			
Interest on Investments			1,241.25						
"Medicine in Manitoba"			165.73						
			$31,882.71			$27,097.00			$25,261.00
Revenue—brought forward			$31,882.71						

EXPENDITURE

Salaries—including expense allowance	$ 7,795.92	
Bank charges	17.24	
Annual meeting—including C.M.A.	305.09	
Donation—Medical Library Committee	800.00	
Entertainment	57.90	
Executive luncheons	514.60	
Complimentary fees	12.00	
General expense	741.14	
Light	63.43	
Office Miscellaneous	345.42	
Printing, Postage and Stationery	1,048.12	
Rent	1,493.50	
Review illustrations	171.64	
Unemployment insurance	28.94	
Travelling	1,283.52	
Telephone	309.50	
		14,987.96
Excess of Revenue over Expenditure		$16,894.75

Estimated Deficit for period	7,663.00
Excess Revenue over Expenditure— 1st January, 1956, to 31 August, 1956	16,894.75
Estimated Excess Revenue for the Year 1956	$ 9,231.75

28.

Estimated Cost of Operation
1st September, 1956 to 31st December, 1956

REVENUE

College of Physicians and Surgeons	$ 320.00	
Winnipeg Medical Society	440.00	
Bond Interest	325.00	
		$ 1,085.00

EXPENDITURE

Salaries	$ 5,000.00	
Rent	615.00	
Unemployment Insurance	16.00	
Light	27.00	
Telephone	140.00	
Printing, Postage and Stationery	350.00	
Miscellaneous	200.00	
Travelling Expenses	900.00	
Annual Meeting	500.00	
Honorarium	1,000.00	
		8,748.00

Membership

29.

To the President and Executive of
The Manitoba Medical Association:

There are 987 doctors in the Province of Manitoba.
707 Winnipeg
280 Rural

815	Active Paid-up Members (793 in the Province)	574 Winnipeg 219 Rural 22 Outside Province
10	Senior Members	5 Winnipeg 5 Rural
4	Complimentary Members	3 Winnipeg 1 Rural
20	Retired	18 Winnipeg 2 Rural
138	Membership Fees Unpaid	94 Winnipeg 44 Rural
987		

Of the 138 doctors whose fees are unpaid, 24 are new registrants, 13 are interning in hospitals, 15 are in the Armed Services, and 14 are not practising, leaving a potential of 72 from whom fees are collectible. On this basis, the percentage of paid-up membership is 91.9%.

38 doctors have been lost to the Association during the year, 9 are deceased and 29 have left the Province.

59 new members have been enrolled to date this year.

The number of paid-up members is higher by 16 than it was at this time last year. The total membership at the end of 1955 was 824.

Respectfully submitted.

W. J. Boyd,
Chairman.

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(ABBOTT'S B-COMPLEX TABLETS WITH C)

Each SUR-BEX with C tablet supplies:			
	Thiamine Mononitrate	6 mg.	
	Riboflavin	6 mg.	
	Nicotinamide	30 mg.	
	Pyridoxine Hydrochloride	1 mg.	
	Vitamin B_{12} (as vitamin B_{12} concentrate)	2 mcg.	
	Pantothenic Acid (as calcium pantothenate)	10 mg.	
	Ascorbic Acid	150 mg.	
	Liver Fraction 2, N.F.	300 mg.	(5 grs.)
	Brewer's Yeast, Dried	150 mg.	(2½ grs.)

Abbott Laboratories Ltd., Montreal

As a dietary supplement: 1 or 2 tablets daily.

For stress, or postoperative convalescence: 2 or more tablets daily.

Abbott

Archives

30.

To the President and Executive of
The Manitoba Medical Association:

The past year has seen the passing of the following members of our Association:

Dr. L. M. Beaton, Winnipeg
Dr. M. Bowman, Winnipeg
Dr. T. W. Brokovski, Winnipeg
Dr. M. Brookler, Winnipeg
Dr. H. Funk, Winnipeg
Dr. A. Gibson, Winnipeg
Lt. Col. L. G. Gunne, Lac du Bonnet
Dr. S. J. Johanneson, Winnipeg
Dr. C. M. McIntyre, Selkirk
Dr. W. S. Peters, Brandon
Dr. F. K. Purdie, Griswold
Dr. T. Turnbull, Winnipeg

All had made contributions to the advancement of medicine though in varying degrees and differing fields; public health, surgery, obstetrics, poetry and general practice. We mourn the loss.

Dr. W. S. Peters was President of the M.M.A. in 1938-39, and Dr. F. K. Purdie in 1942-43.

Respectfully submitted,

Ross Mitchell,
Chairman.

Cancer

31.

To the President and Executive of
The Manitoba Medical Association:

During the past year a research committee was formed to replace the old scientific committee. Dr. Pringle was appointed chairman but was replaced by Dr. C. H. A. Walton. In the future all research matters will be dealt with by this committee.

In September Dr. MacDonald requested and was granted an extended leave of absence to pursue his research at the University of California. Dr. R. J. Walton was appointed acting executive director until a new director is selected.

A Cobalt therapy unit was established at St. Boniface Hospital and the Cobalt source was replaced at the General Hospital.

A radio-active isotope service will be set up at both the General and St. Boniface Hospitals with a central laboratory in the Medical College. These facilities should be available in the very near future.

The Cancer diagnostic service and Department of Radiation therapy continue to function satisfactorily. It is likely that the urban patients will soon receive therapy free of charge.

Respectfully submitted.

Richard O. Burrell,
Representative.

Civil Defence

32.

To the President and Executive of
The Manitoba Medical Association:

As recommended by your Committee in its last report, the services of Col. C. G. Wood, Command Medical Officer, Prairie Command, were retained on a part time basis to draw up a medical plan for Civil Defence for the Province of Manitoba

Several meetings were held during the past year with members of the Provincial and Metropolitan Civil Defence officials and various phases of medical planning were discussed.

Drafts of Col. Wood's plan were circulated as each section was completed and these drafts returned to him with comments.

In March 1956 a meeting was held with Dr. M. R. Elliott, Deputy Minister of Public Health, Mr. R. S. Malone, Col. Wood, Lt. Col. Delaney, Provincial Civil Defence Coordinator, Dr. M. T. Macfarland, Executive Secretary of the Manitoba Medical Association, and the members of your Committee. Col. Wood presented his plan for medical arrangements in case of disaster, and the meeting approved the plan as being exceedingly well produced. Arrangements to publish the plan and distribute it have been made and it should be available in the next few weeks.

Definite recommendations are made in the plan regarding organization and it is felt by your Committee that they demand the urgent attention of the executive of the Manitoba Medical Association.

Your Committee wishes to emphasize the value of Col. Wood's expert knowledge and planning ability, and to express their great appreciation of his services in producing this plan.

In April 1956 the flood threat provided an opportunity for organizing a Medical Evacuation plan for Greater Winnipeg. In the absence of the chairman, Dr. A. R. Tanner conferred with the Metropolitan and Provincial authorities and arrangements were made to have Col. Wood direct this organization. Although it was not required to function, a detailed plan for the evacuation of Greater Winnipeg was prepared and all arrangements made for it to function at a moment's notice.

In conclusion, your Committee wishes to recommend that the provisions of the Medical Civil Defence Plan as written by Col. C. G. Wood be implemented as soon as is practical.

Respectfully submitted.

J. T. MacDougall,
Chairman.

Credentials and Ethics

33.

To the President and Executive of
The Manitoba Medical Association:

During the year your Committee on Credentials and Ethics dealt with a request from a physician who had written two articles wherein mention was made of specific drugs and the author had been asked by two Pharmaceutical companies for permission to distribute a limited number of reprints of the articles at their expense.

The matter was referred by your Committee to the General Secretary of the Canadian Medical Association and the Editor of the C.M.A.J. in order to ascertain what was the accepted ethical procedure in Canada for dealing with such matters.

It was the unanimous opinion of the Committee together with those to whom the matter was referred that approval in this case and under the circumstances stated should be given.

No further matters were referred to the Committee for consideration.

Respectfully submitted,

Thomas A. Lebbetter,
Chairman.

Economics

34.

To the President and Executive of
The Manitoba Medical Association:

Of unusual interest to the medical profession are the proposals of the Federal Government for universal hospital coverage and x-ray and laboratory services. The plan requires approval by a majority of the population. If this is forthcoming the Federal Government would contribute funds to meet approximately half the costs involved, the amount varying slightly among the provinces. The details of the method to be employed, should the proposals be accepted, would be the responsibility of each province. Although the profession has not been approached by government authorities to determine its reaction, the subject of the proposals naturally stimulates its interest.

The Executive and the Economics Committee studied the subject on several occasions. Information as to what the profession felt across Canada and the reaction of the various provincial governments became available from meetings between Mr. Paul Martin, Minister of Health and Public Welfare and the Medical Advisory Committee of the C.M.A. to that department and meetings of the Economics Committee of the C.M.A.

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EACH CAPSULE CONTAINS . . . Dry extract Rauwolfia 4% total alkaloids 1/6 gr. (10 mg.). (Equivalent to 0.4 mg. total alkaloids.) Butabarbital 1/4 gr. (16 mg.).

INDICATIONS . . . Anxiety neuroses, tension states, certain neuropsychiatric conditions and essential hypertension.

DOSAGE . . . One capsule three or four times a day as the physician may direct.

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ETHICAL PHARMACEUTICALS

Professional Representative: Mr. A. C. Payne, 49 Harmon Ave., St. James, Man.

It appeared that many of the provincial governments are interested in the proposals and are investigating their meaning and consequences. The three western provinces have had a hospital coverage scheme for some time and therefore would welcome federal assistance. However, the attitude of the profession was uncertain largely because of lack of information. As far as Manitoba is concerned, this province established, with the aid of Federal Health Grants, a number of centres for x-ray and laboratory services over the past 10 years in rural areas.

During the consideration of the problem, Mr. Bend, Minister of Health for Manitoba and his deputy Dr. Morley Elliott kindly accepted on three occasions invitations for discussions with Dr. Ruvin Lyons and members of his Executive and Economic Committee; namely:

April 2, 1956, Fort Garry Hotel.
Hon. R. W. Bend, Dr. Morley Elliott, Dr. Ruvin Lyons, Dr. C. B. Schoemperlen, Dr. K. R. Trueman, Dr. W. B. Boyd, Dr. R. W. Richardson, Dr M. T. Macfarland.

June 6th, 1956, Moore's Restaurant.
Dr. Ruvin Lyons, Dr. K. R. Trueman, Dr. M. R. Elliott, Hon. R. W. Bend.

July 25th, 1956, Fort Garry Hotel.
Dr. Ruvin Lyons, Dr. K. R. Trueman, Dr. R. W. Richardson, Dr. W. F. Tisdale, Dr. M. T. Macfarland, Hon. R. W. Bend, Dr. M. R. Elliott.

Thus something of Mr. Bend's attitude was known prior to his public statement concerning his government's stand. The government is unable to accept the proposals for several reasons. These include the great expense involved in maintaining and administering the scheme which the province could bear only with additional taxation. In addition a considerable part of the population is already protected against hospital expenses by voluntary pre-paid schemes. Of the remainder, some proportion is capable of handling whatever hospital expenses may occur to them. The others, indigents or near indigents are provided standard ward care in hospitals. The latter are protected against financial loss in the care of such patients by the newly amended hospital Aid Act. This guarantees, through an agreement between the provincial government and the municipalities, the payment of hospital bills if unpaid a period of time. The excellent liaison established between the present minister of health and the profession should be preserved.

The offer of the Federal Government again received full consideration at the meeting of the General Council of the C.M.A. during the Annual Convention in Quebec in June. A motion that the medical profession be in favor of the proposals for universal hospitalization and the establishment of diagnostic centres was defeated, a fact belatedly published in the newspapers. In addition Council by another motion reaffirmed the established policy of the C.M.A. which recommends voluntary pre-paid medical care plans to cover all residents of Canada with financial assistance from public funds where this is required.

The fate of the proposals of the Federal Government no doubt depend upon the action of the individual provincial authorities rather than the attitude of the medical profession. Much has been claimed for and against the proposals. It is to be hoped that whatever may evolve will be founded upon well-recognized economic and sociological principles. A solution forced upon the people because of political expediency cannot be acceptable in the light of established democratic teachings.

DEPARTMENT OF VETERANS AFFAIRS

Negotiations between the Economics Committee, C.M.A. and the Treasury Board of the Federal Government led to changes in some D.V.A. fees. Thus fees for office, house and night calls were raised to $3.00, $4.00 and $5.50 respectively. Meanwhile efforts continue to obtain upward revision in those items where marked variations in D.V.A. fees from current charges exist.

Furthermore in this field discussions have been commenced with the Treasury Department for a single schedule of fees. This schedule would be employed by all federal departments, including D.V.A., for the use of its dependents where medical services are required.

INDIAN HEALTH SERVICES

In respect to the above a fee schedule has been presented by the Indian Health Services, Department of National Health and Welfare. This schedule is about 75 per cent of that of D.V.A. It has not been recognized by the Canadian Medical Association.

Recently a difference developed between a group of doctors in Manitoba and the Indian Health services as to responsibility for payment of medical services. An interpretation of the situation was provided the Economics Committee, by Dr. W. J. Wood of the Services. Indian patients who live on reservations receive care from duly appointed physicians practicing on a full or part time basis. Apart from emergency care such Indian patients requiring special care are referred by the doctor and Indian agent to physicians appointed for this purpose in the Department. Such care is paid for through the Indian Health Services on the basis of its fee schedule. In contrast to this the services take no responsibility for medical care for Indians who have taken up residence elsewhere beyond their reservation after one year's absence. During the first year's absence the services will accept charges for medical care. Should such an Indian require medical assistance after this period responsibility for payments are that of the patient. Should he be indigent the Services interpret the responsibility for his care, Welfare and Medical, to be that of his municipality. This was the basis of the problem mentioned above and the Economics Committee is seeking a solution as to where the responsibility rests.

MANITOBA MEDICAL SERVICE

During the 1955-56 period matters arose for discussion between the Manitoba Medical Association and the Board of Trustees of the Manitoba Medical Service. The first of these was the action of M.M.S. to include a limited degree of extra billing in the contracts with its subscribers. The other was a recommendation by the M.M.S. Board to increase the proportion of lay members on the Board to equal that of the medical members.

The Executive of the M.M.A. disagreed with the action of the Board relating to extra billing largely on the basis of procedure. This matter had been already included in the terms of reference of the special M.M.A. Commission established to study certain M.M.S. principles as they affect specialists and general practitioners. As a result representatives of the Board of Trustees (M.M.S.) and Executive of the M.M.A. met as an interlocking Committee to seek a solution to possible points of disagreement which may arise in the future. The M.M.S. requested that the profession provide it with a list of principles for reference in negotiations which may arise from time to time between the two bodies. At this juncture it should be indicated that M.M.S. is a Corporate body with all right to independent action inherent in the legal act of the incorporation. Its relationship to M.M.A. is affected largely by its respect for the wishes of that body.

The Economics Committee was requested to study both matters and make recommendations to the M.M.A. executive. The following recommendations were accepted by the Executive, were discussed by the interlocking committee of M.M.A.-M.M.S. and have been forwarded to the Board of Trustees of the Manitoba Medical Services. The special Committee of M.M.A. suggested in the study has not yet been determined. Several committees already established are being considered as properly constituted for this purpose.

(1) M.M.A. should agree to an increase in the proportion of lay members on the Board of Trustees of M.M.A. in a gradual manner as a trial. The element of experimentation can be controlled by the nomination by M.M.A. of laymen (suggested by the Board) by right of the M.M.A. to nominate two-thirds of the membership of the Board. Should time and experience demonstrate the increase in lay membership is unwarranted or unsatisfactory, the M.M.A. could resume nomination of medical members to the quota permitted, namely, two-thirds.

Can You Prevent Attacks in Angina Pectoris?

Fear is a faithful companion. In angina pectoris, particularly, many patients live in constant dread of recurrent attacks.

Prophylaxis with Peritrate, a long-acting coronary vasodilator, offers new security in a majority of such cases. A single dose affords protection for as long as 4 to 5 hours, compared to 30 minutes or less with nitroglycerin.

Different investigators[1-3] observed that 80% of their patients responded to Peritrate therapy with fewer, less severe attacks . . . reduced nitroglycerine dependance . . . improved EKG's.

The specific needs of most patients are met with Peritrate's two dosage forms: Peritrate 10 mg. tablets; and Peritrate with Phenobarbital (10 mg. with phenobarbital 15 mg.) where sedation is also required.

Usual Dosage: 10 to 20 mg. before meals and at bedtime.

1. Winsor, T., and Humphreys, P.: Angiology 3:1 (Feb.) 1952.
2. Plotz, M.: New York State J. Med. 52:2012 (Aug. 15) 1952.
3. Dailheu-Geoffroy, P.: L'Ouest-Médical, vol. 3 (July) 1950.

Peritrate

(Brand of Pentaerythritol Tetranitrate)

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Laboratories CO. LIMITED, TORONTO- CANADA

(2) Such an arrangement should depend and be contingent upon an agreement between M.M.S. and M.M.A. that there be recognized spheres of interest which belong to those who receive and those who provide services in M.M.S. and that the physicians' contract be amended that these spheres may be recognized as follows:

The association (M.M.S.) shall not, however, vary or amend its rules and regulations applicable to this agreement, or limit, restrict, or remove, any of the then existing rights of medical members, without explicit concurrence of the Manitoba Medical Association, which shall be recognized as the agent for the medical member in this respect.

(3) That a Special Committee be established by M.M.A. for the purpose of studying proposals to M.M.A. from M.M.S. which touch upon spheres of interest chiefly affecting the profession.

(4) The following subjects again are included as possible spheres of interest in M.M.S. which are of special concern to M.M.A.:

(1) The arrangement of the Fee Schedule for M.M.S. shall be the prerogative of the M.M.A.

(2) The conduct of practice. This involves standards and ethics of medical practice. Thus, if M.M.S. is advised a medical member is giving unnecessary services or not conforming to the standard or common pattern followed by the majority of his professional group such an irregularity should be presented to and be reviewed by a medical committee set up by the Board of M.M.S. It is highly undesirable to place disciplinary power pertaining to a professional group in the hands of a lay group.

(3) Principles involved in remuneration through M.M.S. for medical services. Some of these may not be presently applicable but may be such as to eventually affect medical practice.

(a) Methods of payment where more than one doctor is involved in the care of a patient.

(b) Extra billing by specialists or all medical members.

(c) Co-insurance, deterrents, etc.

(d) Income limitation of subscribers with or without extra billing.

(4) Negotiations with Government re medical care. If government undertakes to enter the field of general medical services, such a move is primarily the concern of the profession. Should M.M.S. be chosen as an agency for providing the services, the profession would anticipate, "a priori," that it would be the negotiating body rather than M.M.S. That is, it would expect M.M.S. if approached first by government, to refer the matter to M.M.A. for mutual assessment and decision.

(5) Changes in the Act of Incorporation. As the present Act was introduced by the profession, it is responsible that any changes sought should first have the clearance of that body.

BRITISH PACIFIC INSURANCE COMPANY L

This company wrote members of the medical profession stating it was preparing to write policies covering policy holders for medical services. It included its fee schedule which the company apparently presumed the profession would accept as full coverage for medical services. This fee schedule was noted to be only 75 percent of that of the Manitoba Medical Service. This presentation by the Company was reviewed by the Executive and the following findings made:

(a) The fee schedule was equivalent to the present prorated level of the M.M.S. fee schedule and therefore well below the minimum schedule of the Manitoba Medical Association.

(b) The profession should be advised that such a schedule, by this company or any other, should be regarded as an indemnity or partial payment only. This is in contrast to comprehensive plan where patients are completely protected. Examples are the M.M.S., D.V.A. and Workmen's Compensation Board. Therefore doctors should charge patients with medical insurance policies according to their custom using the Manitoba Medical Association fee schedule as a guide.

The Chairman of the Economics Committee was instructed to advise the British Pacific Insurance Company of the profession's reaction and circulate the letter to the profession for information.

K. R. Trueman,
Chairman.

Editorial

35.

To the President and Executive of
The Manitoba Medical Association:

The Editorial Board of the Manitoba Medical Review has convened twice in 1956.

It can report with satisfaction on the growth of the Review, which has increased in volume by 25% over the previous year. This growth has been made possible by the active co-operation of our contributors, and the efforts of our indefatigable business manager, Mr. J. G. Whitley.

The Manitoba Medical Review looks forward to a year of greater expansion through increasing participation of the members of the Association.

Respectfully submitted,

S. Vaisrub,
Chairman.

Editorial Committee to Canadian Medical Association Journal

36.

To the President and Executive of
The Manitoba Medical Association:

Manitoba news notes have appeared regularly in the columns of the Canadian Medical Journal. Within the past year a new editor of the Journal, Dr. S. S. B. Gilder has been appointed, and the Journal now appears twice in the month. Abstracts in the field of obstetrics and gynecology have been prepared and printed.

The following Manitoba authors have contributed articles to the Journal: L. R. Coke, L. G. Bell, J. B. Gemmell, A. Gibson, P. N. Hopper, R. T. Ross, J. C. Wilt, R. E. Beamish, S. A. Carter, V. M. Storrie, A. J. Glazebrook, R. Hastings-James, C. W. Mongeon, E. Wong, W. Karlinsky, F. A. Macneil, S. Schultz, G. C. Sisler, E. Stephenson, J. M. Bowman, B. Chown, M. Lewis, W. B. MacKinnon, J. F. Edwards, J. R. Taylor, A. J. W. Alcock, J Hildes, W. Forster, H. Schlicter, A. L. Henderson, M. Tyndel, H. Prosen, J. R. Hastings, J. R. Moorhouse.

Respectfully submitted,

Ross Mitchell,
Chairman.

Hospital Relations

37.

To the President and Executive of
The Manitoba Medical Association:

During the preceding year the Chairman of your Board was asked to review the regulations of a rural hospital insofar as relations between medical men and the administration were concerned. This was effected to the satisfaction of all concerned.

No other problems were submitted to the Committee.

Respectfully submitted,

C. E. Corrigan,
Representative.

Industrial Medicine

38.

To the President and Executive of
The Manitoba Medical Association:

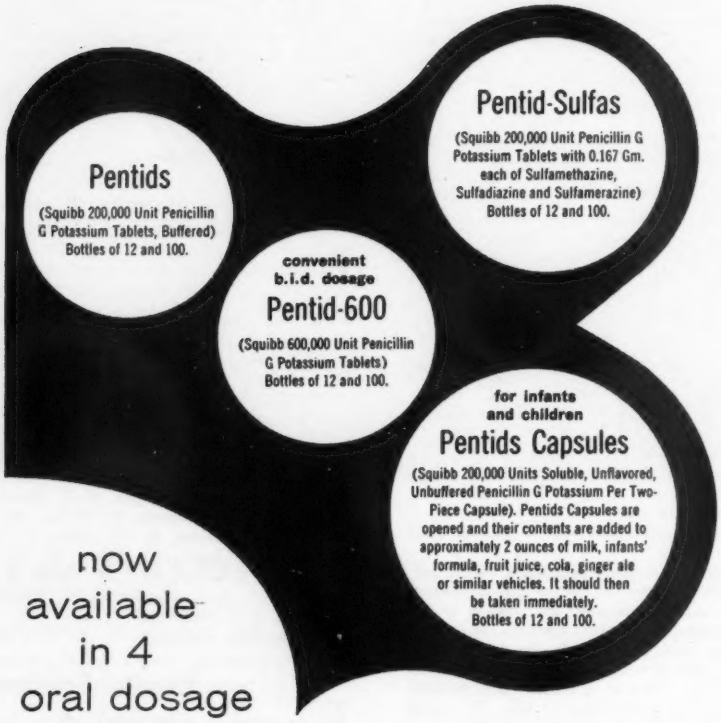
This Committee did not convene during the year.

I wish to report that the Committee on Industrial Medicine of the C.M.A. was revived and corresponding secretaries in each Province appointed. The first project of this Committee is that of the Standardization of Certificates of Industrial Disability. This is in the organization stages, and our members will be informed of its progress.

Respectfully submitted,

K. I. Johnson,
Representative.

for many common bacterial infectious diseases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Legislation

39.

To the President and Executive of
The Manitoba Medical Association:

There were twenty-one bills of interest to the Manitoba Medical Association before the Manitoba Legislature. These were carefully studied with the assistance of our Executive Secretary.

Although none of these bills affected the profession adversely, it was a matter of concern to some of our members that these were not studied in greater detail before they were passed. A recommendation is therefore made at this time to have legal assistance when the House is in session in order to scrutinize carefully all bills that affect the profession before those bills are passed.

Respectfully submitted,

L. A. Sigurdson,
Chairman.

Maternal Welfare

40.

To the President and Executive of
The Manitoba Medical Association:

The committee wishes to submit the following report for the year 1955, based upon information supplied by the Division of Statistics, Department of Health and Public Welfare.

The maternal death rate per 1,000 live births was 0.7, there being 15 maternal deaths in 22,557 live births. This compares with previous years as follows:

Maternal Mortality Rates per 1,000 Live Births, Manitoba 1950-1955:

1950	1951	1952	1953	1954	1955
0.7	1.1	0.5	0.8	0.5	0.7

The causes of death were as follows:

Infections 3
1. Septicaemia following a 3 month abortion.
2. Meningitis 5 weeks after a Caesarean section for disproportion.
3. Peritonitis 6 6weeks after a Caesarean section for disproportion.

Embolism 3
1. Pulmonary embolus 12 days after confinement. A short spontaneous delivery following artificial rupture of membranes for post-maturity.
2. Pulmonary embolus 40 hours after a normal spontaneous delivery.
3. Pulmonary embolus 18 days after a forceps delivery.

Haemorrhages 2
1. Ectopic pregnancy.
2. Third stage haemorrhage.

Congestive Heart Failure 2
1. Died three hours after confinement.
2. Died one week after confinement.

Ruptured Uterus 2
1. Died during 2nd stage undelivered.
2. Died 12 hours following Caesarean hysterectomy.

Toxaemia 1
1. Died 15 hours after giving birth to triplets.

Unknown 2
1. A multiparous Indian died during labour. No doctor in attendance. Nurse reported a prolapsed cord.
2. Another Indian where there was no doctor in attendance. Apparently delivered a 28 week foetus.

Further information obtained from the Maternity Mortality reports submitted, reveals the following:

1. In the infection group, all patients were primigravidae, their ages being 28, 18 and 28 years.

All causes of death were confirmed by autopsy examination.

2. In the embolism group, all patients were multiparae. The cause of death was not confirmed by autopsy examination in any of the cases. The first two cases came on suddenly without any obvious cause. The third case had a thrombophlebitis in her leg which she neglected.

3. In the haemorrhage group, the first patient died before surgery was attempted, the delay being the fault of the patient.

The second case occurred in unorganized territory and there was no medical attendant.

4. In the congestive heart failure group, the first patient was a multipara and known "cardiac" but she never saw her doctor during this pregnancy till she was in labour and in extremis.

The second patient died suddenly and unexpectedly one week after confinement.

5. In the ruptured uterus group, the first patient was a multipara and it would appear she was left for 5 3/4 hours fully dilated without any attempt being made to effect a delivery.

The second patient was also a multipara who had a previous Caesarean section.

6. The patient in the toxaemia group died from eclampsia. She had attended regularly for pre-natal care and had been admitted to hospital and labour induced. The convulsion started following delivery.

7. It is encouraging to see an increase in the number of autopsies performed. Six of the 15 deaths were confirmed by examinations—40% compared to 20% for 1954. Continued improvement will be looked for.

8. It is also encouraging to see the response to the plea for better completion of the Marernal Mortality Enquiry forms.

In all cases where doctors had attended, these forms were satisfactorily filled in and in half of these cases, additional explanatory notes had been added.

I would like to thank the attending physicians concerned, for their excellent cooperation and hope that this showing will be an example to be followed in years to come.

Respectfully Submitted,

W. J. McCord,
Chairman.

Post-Graduate

41.

To the President and Executive of
The Manitoba Medical Association:

The Chairman of the Refresher Course Program was Dr. D. S. McEwen and Dr. J. P. Gemmell, his very efficient Secretary. On Monday, March 26, 1956 the Baxter Laboratories acted as co-sponsors with the Committee on Post-Graduate Studies, Faculty of Medicine, University of Manitoba, in presenting a symposium on Practical Application of Water and Electrolyte Therapy.

The guest speakers for the following three days were: Professor John Anderson of the University of Minnesota, Dr. Martin M. Hoffman of McGill University, Dr. Angus D. McLachlin of the University of Western Ontario and Professor W. Ian C. Morris of the University of Manchester. As in previous years the various meetings were held at the Children's Hospital of Winnipeg, the St. Boniface Hospital and the Winnipeg General Hospital.

The course proved interesting and instructive. In all, some 77 doctors registered. There were 4 from Ontario, 5 from Saskatchewan and 3 from the United States. The remainder were from rural Manitoba or Greater Winnipeg.

Respectfully submitted,

Arthur E. Childe,
Representative.

Public Health

42.

To the President and Executive of
The Manitoba Medical Association:

The Committee considered a proposal made by a milk processing plant to add vitamin "D" to pasteurized milk. Our advice had been sought on this matter by the Provincial Department of Health and Public Welfare. The feelings of the Committee were that while there could be no objection to this supplement as far as safety is concerned, it is doubtful if any

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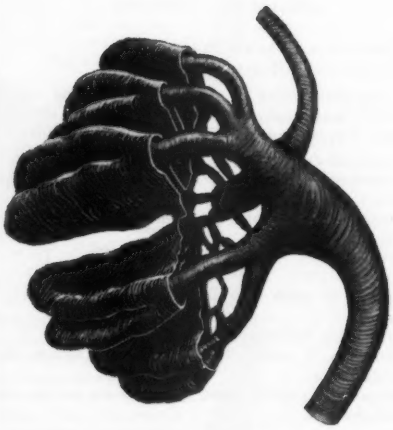

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advantage to the public health would be obtained. The Committee felt that there should be a broader extension in the use of pasteurized milk throughout the province before one could consider this product to be a suitable vehicle for distributing vitamin "D".

The Committee also felt that the 1952 resolution of the M.M.A. concerning fluoridation should be given wider publicity at that time, when so many lay persons were looking for guidance about its true value. This was brought to the attention of the press through the usual channels.

The Communication made by us last fall to the C.M.A. Nucleus Committee on public health concerning our recommendation that all new-born nurseries in Canada should be under the supervision of a paediatrician, received consideration. This Nucleus Committee in co-operation with the Committee of Foetus and the Newborn, B.C. Division, C.M.A. have resolved that the Canadian Medical Association recommend to all Divisions and to the Joint Commission on Accreditation of Hospitals and Canadian Commission on Hospitals that a qualified physician especially interested in newborn (usually a paediatrician, if available, but quite possibly a general practitioner or an obstetrician) should be responsible for newborn nurseries in all hospitals. The Joint Committee felt that if such a qualified physician is to exercise effective control of nurseries, his duties and responsibilites must be defined. It was therefore resolved that the Canadian Medical Association recommend to all Divisions and Joint Commission on Accreditation of Hospitals and Canadian Commission of Hospitals that the qualified physician in charge of newborn nurseries has at least the following responsibilities:

1. He will act in a liaison capacity between the heads of the Departments of Obstetrics and Paediatrics and the local Department of Public Health.
2. He shall make rounds in the nurseries if possible daily, but at least three times a week.
3. He will be responsible for the special procedures necessary for the care of premature infants.
4. He will establish "Standing Orders" for all nurseries, and all members of the medical staff should agree to govern their treatment of newborn patients within these provisions.
5. He will be responsible for the prevention of the spread of infection among newborns by establishing rules of technique and by isolating all babies suspected of infection.
6. He will supervise the activities of the head nurse in charge of nurseries.
7. He will supervise the function of the Formula Room.
8. He will act as physician to the "staff" patients.
9. He will act as chairman of a group which reviews at regular intervals all stillbirths and neonatal deaths.
10. He will act as consultant to other members of the medical staff utilizing the facilities of the nursery for care of newborn patients.
11. He will take an active part in the teaching program relative to the care of the newborn.
12. He will assure that adequate arrangements are made for the collection of mortality and morbidity statistics in connection with the newborn, and arrange regular meetings to discuss these statistics.

Respectfully submitted,

J. N. R. Scatliff,
Chairman.

Public Relations

43.

To the President and Executive of
The Manitoba Medical Association:

A Public Relations press code will soon be released by the Canadian Medical Association for the use of the various Divisions across Canada. This will be of assistance to doctors in dealing with the press, radio, television, and other communication media and will do much to improve public relations between the medical association and the public.

There have been many instances where your committee has been called upon to assist the newspapers, radio and television in factual reporting on medical problems. There is now a spirit of co-operation in this province which is excellent.

Respectfully submitted,

L. A. Sigurdson,
Chairman.

Rehabilitation

44.

To the President and Executive of
The Manitoba Medical Association:

As the members of your committee on rehabilitation are members of the Medical Advisory Committee to the Rehabilitation Commission, and the chairman of your committee is also the chairman of that advisory committee, this report will deal with the activities of that body. The general function of the Medical Advisory Committee is to study the existing medical resources, and anticipate the need for new facilities and how they may best be utilized in the provincial rehabilitation program. This Committee also exercises a general supervision over the medical policy of the rehabilitation agency, the Society for Crippled Children and Adults of Manitoba.

Since January 1955 the Medical Advisory Committee on rehabilitation has held ten formal meetings where major issues have been discussed and recommendations made to the Rehabilitation Commission.

In the summer of 1955 a special sub-committee of the Medical Advisory Committee was appointed to study the roles of our various hospitals in a provincial rehabilitation program. After a thorough investigation this sub-committee recommended that the provincial government approach the University with a view to the establishment of a special department of physical medicine within the Department of Medicine, and that a director of physical medicine be appointed to head this department. It was further suggested that this director would have three responsibilities; the most important of which would be the coordination of all facilities for physical medicine in the province of Manitoba in cooperation with the Medical Advisory Committee. Secondly, teaching in physical medicine should be under his overall direction. Thirdly, he should implement the formation of a school of physical and occupational therapy in Manitoba and supervise its teaching. This matter has been considered by the Minister and it is anticipated that some definite action may be taken this fall. The sub-committee further suggested that the Children's Hospital, the General Hospital, and St. Boniface Hospital should be responsible for the initial active treatment of children and adults, and that the Municipal Hospitals should be used for the care of those who might require prolonged treatment and supervision but do not need to occupy active treatment beds. To that end, it was recommended that the Municipal Hospitals change their closed hospital policy insofar as their non-infectious wards were concerned, and we are pleased to note that applications are now being received for appointment to the courtesy staff of that institution.

Rehabilitation advisory clinics have been in operation in the Winnipeg General Hospital and in the St. Boniface Hospital since November 1955. To date 25 clinics have been held and approximately 130 patients have been seen. Each clinic has a chairman who is the medical director of the outpatient department of the hospital concerned. This chairman selects the other consultants for these clinics in accordance with the types of disabilities to be seen and the consultants are selected in rotation from the honorary attending staff of each hospital. Both the chairman and the doctors serving in the clinics are paid for their services. A clinic has also been inaugurated at the Children's Hospital.

Funds are also available to the Society for Crippled Children and Adults for the operation of rural diagnostic clinics. In the past the Society has operated crippled children clinics in ten key rural centres in Manitoba and a select group of specialists served on these clinics. The provincial Medical Advisory Committee has altered this policy and in future, specialists will be selected for rural clinics in rotation from the specialist's

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register of the College of Physicians and Surgeons of Manitoba, and in 1957 adult clinics will be instituted in accord with the above medical policy.

This past year has seen the expansion of physical medicine facilities in our general hospitals and these services will be still further extended with the opening of the new Children's Hospital this fall and with the development of the new wings of the Winnipeg General Hospital.

In an effort to clearly explain to the profession in Manitoba the nature of the development of our rehabilitation facilities, a pamphlet was prepared by Mr. Walter Boyd, the Provincial Coordinator of Rehabilitation Services and myself, which has been widely circulated to the profession.

It is our belief that very definite progress has been made in the establishment of rehabilitation facilities in this province and we are informed that Manitoba is well to the forefront in the development of such services.

Respectfully submitted,

F. Hartley Smith,
Chairman.

Sanatorium

45.

To the President and Executive of
The Manitoba Medical Association:

As representative to the Sanatorium Board of Manitoba I attended the Annual Meetings of the Board on February 3rd and February 10th 1956. At the first meeting the reports of the Medical Superintendents were read and at the second the reports of the Medical Director and the Administration were given. The summing up of the situation in tuberculosis is Manitoba for 1955 by E. L. Ross, the Medical Director was as follows:

"The death rate is low (8.5 per 100,000) but for the first year in many there was no further reduction. The decrease in new active cases is encouraging, being greater than for any previous year. There were 1,014 persons on treatment in Sanatoria at the end of the year (492 whites, 348 Indians and 174 Eskimos). This is a decrease of 50 compared to December, 31st, 1954. Treatment days were 29,408 less in 1955 than in 1954, being reduced from 397,526 to 368,118. There were 100 vacant beds in sanatoria on Dec. 31st, 1955. An aggressive case-finding program was continued, providing 324,342 chest x-rays by the Board's various agencies. The discovery rate of active tuberculosis by mass x-ray surveys was very low, indicating a need for some change in emphasis and more intensification of case-finding efforts in some areas and among certain segments of the population. In the campaign against tuberculosis gains are steady and casualties fewer but the disease is still well entrenched. Ultimate eradication is possible by sustaining and concentrating all methods of attack."

Respectfully submitted,

Murray H. Campbell,
Representative.

Society for Crippled Children and Adults

46.

To the President and Executive of
The Manitoba Medical Association:

The Society for Crippled Children and Adults has shown a tremendous growth since 1950. From a budget of $20,000.00 in 1950 to over $300,000.00 in 1956, and the handling of a few crippled children in 1950 to a total of 1759 patient cases in 1955.

The ones who benefitted are those children and adults suffering from disabilities caused by Poliomyelitis, Congenital Defects, Cerebral Palsy, Arthritis, Multiple Sclerosis and accidents. Now Total Disability allowances cases are being handled in adults, such as Mental Deficiency, Parkinson's Disease, Disseminated Sclerosis, Psychoses, Psychoneurotics and Epilepsy. Further expansion may include treatment of squint, mental retardation and Epileptics in children. Average cost per patient per year is from $250.00 to $300.00.

Three hundred and forty persons were placed in jobs to the end of 1955, some permanent, some temporary, and some part time jobs.

Medical expenses from January 1, 1955 to March 31, 1956 were $147,966.00. This includes salaries to Medical Directors, fee for service payments to Staff Doctors used by the Society, and other Doctors who have done work for the Society, Hospital, Anaesthetist expenses, etc.

The Government has taken more of the financial burden giving grants up to 22% of the Total Revenue, at present a grant of $90,000.00. Government Grants enable the Society to develop its services further will be available in the amount of approximately $170,000.00 for work with crippled children, Adult Medical Rehabilitation, and Adult Vocational Training. It is a healthy situation when voluntary and public funds are being utilized together for the maximum good of the community.

The Society has become the Central Rehabilitation Agency for the Province of Manitoba with the cooperation of the Staffs of St. Boniface, Winnipeg General and Children's Hospitals. Panels are being held at regular intervals. The Panels are chaired by a Medical person on staff of the particular Hospital concerned, and appointed by that hospital. To date this man has been the Director of the Outpatient Department in both hospitals. He is responsible for arranging the appropriate specialist to be in attendance at the Assessment Panels. These men are members of the active hospital staff, serving in rotation on the Panel. They are paid on a sessional basis. Subsequent medical treatment may be their responsibility. These clinics have proved exceedingly successful. Careful consideration is given to Social, Economic and Medical factors, following complete physical examination, before recommendations regarding medical treatment, suitability for rehabilitation or job training and placement are made.

This increasing interest on the part of voluntary agencies and Government is indeed changing the pattern of Medicine. Now, it is in chronically disabled people the interest lies, but in the future other medical cases will likely come under their care. At present, the number of doctors involved is small and they are mainly specialists. The principles of fee for service, rotation of staff involved in their care, and volunteer agency administration are good.

Respectfully submitted,

Donald J. Hastings,
Representative.

Workmen's Compensation Board of Reference

47.

To the President and Executive of
The Manitoba Medical Association:

From the period 1st September 1955 to 31st August 1956 your Board was convened on seventeen (17) occasions and reviewed forty-one (41) patients from Manitoba. In addition, three (3) patients from Saskatchewan and one (1) patient from British Columbia were also reviewed. No problems of special importance arose.

Respectfully submitted,

C. E. Corrigan,
Chairman.

Workmen's Compensation Board Negotiating Committee

48.

To the President and Executive of
The Manitoba Medical Association:

You will recall, at the last Annual Meeting of the M.M.A. you were presented with a new Schedule of Fees and Regulations by the Workmen's Compensation Board.

Due to some misunderstandings by the members of our Association, it was necessary for the Negotiation Committee to meet with the Workmen's Compensation Board on several occasions to deal with many problems, but primarily relation to:

(1) Consultations (2) X-ray Schedule.

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(1) *Consultations.* Procedures No. 57 and No. 58 are not thoroughly understood. No. 58 "Consultations when initiated by Board (only when Board asks for a private opinion from a non-interested consultant)—is never used unless in exceptional circumstances.

When the Board suggests to the attending physician that a consultation would be advisable, this is covered under No. 57, and does not have the implication of No. 58. If the attending physician has knowledge of the consultation, whether or not it has been suggested by himself, No. 58 is not to be used. The Workmen's Compensation Board informs us that during the year 1956, they have never initiated a consultation without the knowledge and consent of the attending physician.

(2) *X-ray Schedule.* A number of procedures are especially marked thus (#), and regulations covering them are noted in bold red print, to the effect that except in cases of emergency, these procedures are not to be undertaken unless authorized by the Board.

Other procedures have caused misunderstandings. Your committee, in consultation with the Section on Radiology, M.M.A., and with the approval of the Executive Committee of the M.M.A., have advised the Workmen's Compensation Board that the following procedures should also be marked (#) in the X-ray Schedule;

No. 283	No. 292	No. 295	No. 299
No. 285	No. 293	No. 296	No. 304
No. 290	No. 294	No. 298	No. 345

In addition some further changes have been made in the Schedule: Procedures No.'s 271 to 274 inclusive, are to be deleted; and add No. 271-A. "Encephalogram and/or ventriculogram ..... $35.00."

The Committee feels that these changes should prove helpful to the members.

May I take this opportunity to thank the members of my Committee, the officers of the Section on Radiology, M.M.A., the Executive of the M.M.A., and our Executive Secretary Dr. M. T. Macfarland, for their very able assistance and support on all contentious matters.

Further, may I take this opportunity to thank Commissioner Cousley, Q.C. and Dr. D. J. Fraser, C.M.O., for their co-operation and kindness in allowing our representatives to meet with them on many occasions to present our views. We appreciate the consideration shown us, and all questions of a contentious nature have been amicably settled by the Commissioner and your Chairman.

Respectfully submitted,

P. H. McNulty,
Chairman.

Traffic Accidents

49.

To the President and Executive of
The Manitoba Medical Association:

This Committee was convened on October 5th, 1955 and its membership is as follows:

Dr. Athol Gordon, Chairman
Dr. J. A. Hillsman, Surgery
Dr. Dwight Parkinson, Neural Surgery
Dr. G. H. Ryan, Orthopedic Surgery
Dr. J. M. Ridge, Pathology
Inspector J. M. L. Somers, R.C.M.P. Traffic Dept.
Sgt. C. Stanyer, R.C.M.P. Traffic Dept.
Inspector Robt. Montgomery, City of Winnipeg Police, Traffic Dept.

The project being a new one the central committee were not able to furnish definitive terms of reference and it was not until the Chairman returned from the Montreal Conference that any clarification was possible. At the Montreal meeting it was decided to establish a foundation for the study of traffic accidents across Canada. It was unanimously decided that a long-term statistical study was indicated. The Montreal group heard Dr. John Moore whose work with the Cornell group on crash injuries is outstanding. He, it was, who strongly recommended the statistical approach to the problem.

The conference instructed the delegate members to return each to his provincial committee and there to embark upon preliminary studies of the aspects of Traffic Accidents most applicable to the local scene. Your local committee will be meeting shortly and it is intended to work in close liaison with the parent body. The Royal College, Canadian Bar Association, L'Asociation des Medicins de Langue Francaise, and the Canadian Medical Association are the four bodies concerned in this project. The Foundation is tentatively visualized as consisting of a series of ten units across Canada, each consisting of a chairman and two others. Over all a key man, probably an epidemiologist of high calibre, together with a co-ordinating officer, a board of governors to find funds, a medical advisory board, and a co-ordinating committee of statisticians.

Respectfully submitted,

Athol Gordon,
Chairman.

Eye, Ear, Nose and Throat

50.

To the President and Executive of
The Manitoba Medical Association:

During the year 1955-56 this section held four meetings. Guest speakers included Dr. J. C. Wilt who spoke on "Recent Developments in Virology" and Dr. R. T. Ross who spoke on "Migraine and its variants."

The following officers were elected for the year 1956-57:
Chairman: Dr. R. M. Ramsay
Secretary: Dr. J. A. Rubin.

Respectfully submitted,

Jack A. Rubin,
Secretary.

Internist Section

51.

To the President and Executive of
The Manitoba Medical Association:

During the period of 1955-56 this section held five meetings. The first meeting held in Theatre A at the Medical College, was a business meeting held September 27, 1955.

On October 26, 1955, Dr. John Beck of McGill University spoke to the section on "Modern Management of Patients with Pituitary and Adrenal Insufficiency."

On January 23, 1956, Dr. Ward Fowler of the Mayo Clinic spoke to the section on "Value and Limitations of Pulmonary Function Tests."

On March 26th, 1956, Dr. Martin Hoffman from Montreal and Dr. John Anderson from Minneapolis spoke to this section on "Problems and Management of Diabetes Mellitus."

On May 18th, 1956, Dr. E. A. Carmichael of London, England spoke to the section on "Some Aspects of Hemispherectomy in Man."

At the meeting on January 23, 1956 the following officers were elected for the year 1956-57:

President, Dr. J. M. Kilgour
Secretary, Dr. E. G. Brownell
Program Director, Dr. R. M. Cherniack

Respectfully submitted,

E. G. Brownell,
Secretary.

Psychiatric Section

52.

To the President and Executive of
The Manitoba Medical Association:

In the year 1955-56 the Psychiatric Section held three meetings in which a business session and the presentation of scientific papers were combined.

The meeting in October, 1955, at Winnipeg, was highlighted by a talk "Whither Psychiatry," presented by Dr. D. W. Hastings, Professor of Psychiatry, University of Minnesota.

In April, 1956, a meeting was held at the Manitoba School at Portage. Clinical papers were rendered by Dr. Gibson of

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Portage on some interesting genetic-endocrine disturbances found associated with mental deficiency; and by Dr. C. Gonsalves who reported on research projects in psychiatry undertaken at the Winnipeg General Hospital.

In May, 1956, the annual meeting was held at the Selkirk Mental Hospital. A scientific paper was presented by Mr. F. S. Wilson, Psychologist at the Hospital, on "Trends in Clinical Testing." Drs. J. Asselstine and Wm. Forster reviewed points of interest in connection with the A.P.A. convention in Chicago.

At this meeting the following officers were elected to the Executive of the Section: Chairman, Dr. Wm. Forster; Vice-Chairman, Dr. Wm. Glassco; Secretary-Treasurer (3 years), Dr. R. H. Tavener; Past Chairman, Dr. T. A. Pincock.

Respectfully submitted,

R. H. Tavener,
Secretary-Treasurer.

Radiological

53.

To the President and Executive of
The Manitoba Medical Association:

The Radiological Section of the Manitoba Association held several meetings this year and there was also one joint meeting with the Section of Pathology to discuss mutual problems.

The officers for the year are:

Chairman, Dr. M. K. Kiernan
Secretary, Dr. J. B. Squire
Treasurer, Dr. W. J. Elliott

Respectfully submitted,

J. B. Squire,
Secretary.

Pension Committee

54.

To the President and Executive of
The Manitoba Medical Association:

The Pension Committee has met with the Manitoba Medical Service for the purpose of working out a plan of deferred payments of M.M.S. fees. The mechanics of working out this arrangement are now undergoing consideration by both the M.M.S., the M.M.A. and our legal counsel.

Respectfully submitted,

M. S. Hollenberg,
Chairman.

Pharmacy

55.

To the President and Executive of L
The Manitoba Medical Association:

This Committee has no report since no matters came up that required a meeting of the Committee.

Respectfully submitted,

M. J. Ormerod,
Chairman.

Group Insurance

56.

To the President and Executive of
The Manitoba Medical Association:

The Sickness and Accident Insurance policy which has been in force since 1939 has continued to fulfill its function and has proven of great value to the profession. However, a complete investigation of the ratio of claims to premiums paid since the beginning of the plan is now in progress wth a view to either lowering the premiums or gaining additional benefits for the members. The results of this investigation will not be known until the end of 1956 and any additions along this line will be reported to the Manitoba Medical Association Executive Committee.

In addition your Committee has sent out a questionnaire to every member of the profession who may be interested in a further group life policy which is at present in effect with the Manitoba Medical Service. From the approximately 500 replies received the vast majority were in favour of attempting to secure an additional $15,000.00 group life insurance. In addition this vast majority desired that the partial payment for disability should be included in the life contract. This information has been forwarded both to the Manitoba Medical Association Executive and to the Group Insurance Committee of the Manitoba Medical Service. This matter is at present being investigated by that Committee. It is to be hoped that both the additional insurance and the disability features of these policies will be instituted as soon as possible.

Respectfully submitted,

L. R. Rabson,
Chairman.

Medical Education

57.

To the President and Executive of
The Manitoba Medical Association:

Brandon and District Medical Association

December 8, 1955, at Brandon—
Dr. C. C. Ferguson — Surgical Emergencies in the Newborn Period.
Dr. H. Medovy — Newborn Nursery Care.
Dr. A. E. Childe — Diseases of the Bone in Childhood.
Dr. J. K. Martin — Etiology of Cerebral Palsy.

February 22, 1956, at Brandon—
Symposium on Peptic Ulcer.

May 23, 1956, at Brandon—
Dr. J. C. Wilt, Professor of Bacteriology.
Dr. W. Karlinsky, Internist.
Dr. Wm. C. Taylor, Pediatrician.
Dr. J. McGoey, E.N.T.

September 12, 1956, at Clear Lake (Combined).

Central District Medical Society

April 25, 1956, at Portage la Prairie—
Dr. W. J. Friesen — Ovarian Function.
Dr. W. B. MacKinnon — Affections of the Knee Joint.

North of 53 District Medical Society

March 2, 1956, at Flin Flon—
Dr. W. C. Taylor — Acute Respiratory Diseases in Infants.
Dr. J. P. Gemmell and Dr. C. W. Clark — Symposium on Thyroid Diseases

Northern District Medical Society

November 17, 1955, at Dauphin—
Dr. H. F. Cameron — Head Injuries and Subdural Haematona.
Dr. D. L. Kippen — Infectious Hepatitis.
Dr. J. N. Briggs — Some Problems of the Newborn Infant.

May 17, 1956, at Dauphin—
Dr. J. H. McBeath — Upper Urinary Tract Lesions.
Dr. T. M. Roulston — Delayed Labor.

September 12, 1956, at Clear Lake (Combined).

Northwestern District Medical Society

May 16. 1956, at Hamiota—
Clinical Case of Jaundice.

September 12, 1956, at Clear Lake (Combined).

Southern District Medical Society

May 24. 1956, at Morden—
Dr. R. E. Beamish lead a discussion on the Cardiogram Clinical Cases.

September 13, 1956, at Winkler—
Dr. J. E. Isaac.
Dr. J. Hoogstraten.

Respectfully submitted.

J. P. Gemmell,
Chairman.

General Surgery

58.

To the President and Executive of
The Manitoba Medical Association:

The following meetings were held during the year:

February 9, 1956, Panel: Dr. M. R. MacCharles, Moderator, "The Rationale of Cancer Therapy"

March 26. 1956, Dr. Wm. E. Abbott: "Nutritional and Electrolyte Alterations in Patients with Gastro Intestinal Disorders"

June 22, 1956, In honour of Dr. Ian Aird.

In addition several meetings were held to discuss and formulate a brief for submission to the Commission studying the Manitoba Medical Service. This brief was mailed to the Commission and representatives were not sent to present it.

Respectfully submitted.

L. R. Rabson,
Chairman.

Book Review

The Biliary Tract with Special Reference to the Common Bile Duct. By Julian A. Sperling, A.B., M.D., M. Med. Sc., F.A.C.S. Staff Surgeon, Albert Einstein Medical Center and Graduate Hospital, Philadelphia. Cloth Binding. Price $10.00. Pp. 424, with 94 illustrations. William and Wilkins Company, Baltimore, Md., U.S.A. 1955.

This book presents a detailed study of the common bile duct and papilla of Vater. Excellent chapters on anatomy and physiology are noteworthy. The concept of the papilla of Vater as a nipple-like mass of muscle and fibrous tissue with narrow ducts for bile and pancreatic secretions is convincingly developed. The misleading term "ampulla" is sharply criticized. The author has done much study and original work, and his book reflects these. The chapters on Radiology and Anaesthesia are valuable. The clinical manifestations of the several diseases and the management, both medical and surgical, are fully presented. One feels the author is writing from his own experience.

Related topics such as gall bladder, pancreas, and liver are treated less thoroughly. Some aspects are presented in outline or summary.

The book is recommended for all interested in diseases of the common bile duct. R. L. C.

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The University of Manitoba
POST GRADUATE TRAINING IN
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The Department of Psychiatry offers a comprehensive training program designed to qualify candidates for the M.Sc. degree and for examinations of the Royal College of Physicians and Surgeons of Canada.

Prerequisites are graduation from an approved medical school and one year's rotating interneship. Trainees may in some cases be given credit for previous post graduate training.

The program consists of four years' supervised clinical experience in a number of hospitals and clinics, and correlated didactic courses in the Department of Psychiatry and in other University Departments.

The sequence of rotation of clinical assignments is flexible, but in outline is as follows:

1 year—
Psychiatric Residency at a Provincial Mental Hospital or the Winnipeg Psychopathic Hospital.

1 year—
Psychiatric Residency at the Winnipeg General Hospital or St. Boniface General Hospital.

6 months—
Paediatric Psychiatric Residency at the Winnipeg Children's Hospital.

6 months—
Clinical Assistantship in Neurology at the Winnipeg General Hospital.

Final Year—
Several choices of assignments depending largely on the special interests and aptitude of the trainee.

Candidates will register with the Faculty of Graduate Studies and Research as M.Sc. students, and undertake supervised original research and prepare a thesis thereon.

The University fee is $180.00, with a $2.00 re-registration fee annually. Applications should be made to the Department of Psychiatry by December 1st. Successful applicants will commence their residency July 1st.

The stipend provided varies with the training area. A limited number of Bursaries and Teaching Assistantships are available. During the period of residency in Provincial Government Hospitals, the stipend will be in keeping with the salary schedule of these hospitals which currently is in the range $5,040 - $6,600 per annum. Living accommodation is provided at nominal cost in some hospitals.

Additional information and application forms may be obtained by writing to:

The Department of Psychiatry
University of Manitoba
Room 110, Medical College Buildings
Winnipeg 3, Manitoba

Department of Health and Public Welfare

Comparisons Communicable Diseases — Manitoba (Whites and Indians)

DISEASES	1956 Aug. 12 to Sept. 8,'56	1956 July 15 to Aug. 11,'56	1955 Aug. 14 to Sept. 10,'55	1955 July 17 to Aug. 13,'55	Total Jan. 1 to Sept. 8,'56	Total Jan. 1 to Sept. 10,'55
Anterior Poliomyelitis	4	0	4	12	9	24
Chickenpox	28	46	13	32	721	899
Diphtheria	7	0	0	0	9	1
Diarrhoea and Enteritis, under 1 year	18	6	19	19	87	97
Diphtheria Carriers	0	0	0	0	2	2
Dysentery—Amoebic	0	0	0	0	0	0
Dysentery—Bacillary	3	0	8	0	12	17
Erysipelas	1	0	2	0	12	10
Encephalitis	0	1	1	0	1	1
Influenza	3	1	6	25	77	213
Measles	37	38	64	29	1123	2098
Measles—German	5	2	1	1	160	62
Meningococcal Meningitis	0	0	0	1	4	13
Mumps	31	21	24	39	961	925
Ophthalmia Neonatorum	0	0	0	0	0	1
Psittacosis	0	0	0	0	1	0
Puerperal Fever	0	0	0	0	1	1
Scarlet Fever	2	2	10	3	96	135
Septic Sore Throat	0	2	1	1	6	17
Smallpox	0	0	0	0	0	0
Tetanus	0	0	0	0	2	0
Trachoma	0	0	0	0	0	0
Tuberculosis	66	74	32	67	404	484
Typhoid Fever	0	0	2	0	0	3
Typhoid Paratyphoid	0	0	0	0	1	0
Typhoid Carriers	0	0	0	0	0	0
Undulant Fever	1	0	0	1	8	7
Whooping Cough	29	30	57	49	288	561
Gonorrhoea	116	78	137	97	876	805
Syphilis	5	6	7	4	50	73
Jaundice Infectious	22	17	25	23	207	243
Tularemia	0	0	0	0	0	3

Four-Week Period August 12th to September 8th, 1956

DISEASES (White Cases Only)	*849,000 Manitoba	*861,000 Saskatchewan	*2,825,000 Ontario	*2,952,000 Minnesota
Poliomyelitis	4	1	60	74
Chickenpox	28	....	246	....
Diarrhoea & Enteritis, under 1 yr.	18	20	....	....
Diphtheria	7	....	....	....
Diphtheria carriers	....	....	....	....
Dysentery—Amoebic	....	....	1	2
Dysentery—Bacillary	3	2	7	11
Encephalitis Epidemica	....	3	3	....
Erysipelas	1	....	....	....
Influenza	3	....	10	1
Measles	37	....	....	13
German Measles	5	23	138	....
Meningitis Meningococcal	....	1	6	1
Mumps	31	....	247	....
Jaundice Infectious	22	65	17	31
Psittacosis	....	....	....	....
Salmonellosis	....	....	....	17
Scarlet Fever	2	1	68	13
Septic Sore Throat	....	8	5	51
Smallpox	....	....	....	....
Tetanus	....	....	....	....
Trachoma	....	....	....	....
Trichinosis	....	....	2	....
Tuberculosis	68	33	113	113
Typhoid Fever	....	....	10	2
Para-Typhoid	....	1	2	....
Typhoid Carrier	....	....	....	....
Undulant Fever	1	....	1	5
Whooping Cough	29	36	91	11
Gonorrhoea	116	....	....	†
Syphilis	5	....	....	†

*Approximate population.

†These figures were not given on their reports.

DEATHS FROM REPORTABLE DISEASES

September, 1956

Urban—Cancer, 64; Pneumonia, Lobar (490), 7; Pneumonia (other forms), 12; Tuberculosis, 4; Diarrhoea & Enteritis, 1. Other deaths under 1 year, 22. Other deaths over 1 year, 255. Stillbirths, 13. Total, 378.

Rural—Cancer, 31; Pneumonia, Lobar (490), 5; Pneumonia (other forms), 5; Tuberculosis, 6; Diarrhoea & Enteritis, 1. Other deaths under 1 year, 12. Other deaths over 1 year, 186. Stillbirths, 11. Total, 257.

Indians — Cancer, 1; Pneumonia (other forms), 1. Other deaths under 1 year, 3. Other deaths over 1 year, 2. Stillbirths, 1. Total, 8.

◆

Poliomyelitis — Two more cases, both with mild paralysis, have been reported too late to be included in the figures. Connaught Laboratories report there is no reason why both polio vaccine and combined antigen should not be given to the same child at one visit.

Diphtheria—Seven new cases reported during this period. Remember antitoxin is still necessary in Diphtheria to neutralize the toxin — not just an antibiotic alone.

Dick Test — Connaught Laboratories advise they are no longer making this material, consequently no further orders for Dick Test material can be filled by the Department of Health.

Detailmen's Directory

Representing Review Advertisers in this issue, whose names are not listed under a business address.

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